RRB NTPC CBT-I Official Paper (Held On: 24 July 2021 Shift 1) (Previous Year Paper)

RRB NTPC • 2021 • 100 questions • 90 minutes • Answer key and solutions

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Q1. Which of the following National Highways links Pune and Hyderabad?

(a) NH-24
(b) NH-9
(c) NH-27
(d) NH-7

Q2. What is the value of (0.03) × (0.05) × (1.5)/0.0225 ?

(a) 0.05
(b) 1.5
(c) 0.15
(d) 0.1

Q3. WTO is a world organisation. Which of the following statements about WTO is INCORRECT?

(a) Ngozi Okonjo-Iweala of Nigeria is the organisation's seventh Director-General.
(b) Its top decision-making body is the Ministerial Conference.
(c) Its full form is World Transport Organisation.
(d) It deals with the rules of trade between nations.

Q4. Which of the following is NOT a good preservative for pickles?

(a) Sodium benzoate
(b) Pepper
(c) Salt
(d) Sodium metabisulphite

Q5. What is the value of (2 + √5)^4 - (2 - √5)^4?

(a) 96√5
(b) 12√5
(c) 144√5
(d) 120√5

Q6. What is the basic function of estrogen?

(a) To maintain a pregnancy
(b) To regulate the menstrual cycle
(c) To balance the mood
(d) To develop male reproductive tissues

Q7. Select the number from among the given options that can replace the question mark (?) in the following series.

11, 9, 18, 16, 32, ?

(a) 34
(b) 32
(c) 64
(d) 30

Q8. The length, width and height of a cuboid are 4 m, 3 m and 12 m respectively. What will be the length of the longest side that can be put inside the cuboid?

(a) 4 m
(b) 3 m
(c) 12 m
(d) 13 m

Q9. Which of the following is India's first formally launched and first indigenously designed and constructed ballistic missile submarine (SSBN)?

(a) INS Arihant
(b) INS Chakra
(c) INS Vagir
(d) INS Kalvari

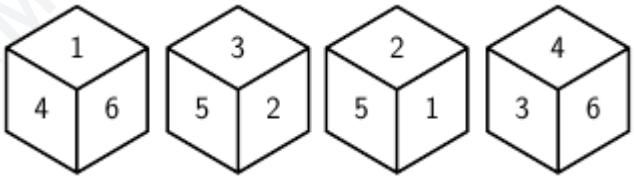
Q10. Select the term from among the given options that can replace the question mark (?) in the following series.

24XV, 35UR, 48QM, ?

(a) 80LG
(b) 63MH
(c) 63LG
(d) 65LH

Q11. Read the given information and answer the question that follows.

The following are different views of the same cube.



Which of the following is definitely a pair of opposite faces?

(a) 1 and 2
(b) 1 and 3
(c) 5 and 3
(d) 3 and 6

Q12. Which of the following statements about the Association of Southeast Asian Nations (ASEAN) is INCORRECT?

(a) An aim of the Association is to accelerate economic growth, social progress and cultural development in the region.
(b) ASEAN was established on 8 August 1967 in Bangkok.
(c) It comprises a group of ten member states as of 2019.
(d) It started with three original member countries.

Q13. Pisces are exclusively aquatic animals. Which of the following is NOT a characteristic of them?

(a) Their hearts have only two chambers.
(b) They obtain oxygen dissolved in water by using their gills.
(c) They are warm-blooded.
(d) Their skin is covered with scales.

Q14. Plants are divided into groups. Which of the following is NOT one of them?

(a) Angiosperms
(b) Gymnosperms
(c) Thallophytes
(d) Arthropoda

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Q15. The 3^(rd) Global Potato Conclave, organised by the Indian Potato Association (IPA) in collaboration with the Indian Council of Agricultural Research (ICAR), New Delhi and ICAR - Central Potato Research Institute, Shimla, Himachal Pradesh and International Potato Centre (CIP), Lima, Peru, was held in ____ from 28^(th) to 31^(st) January 2021

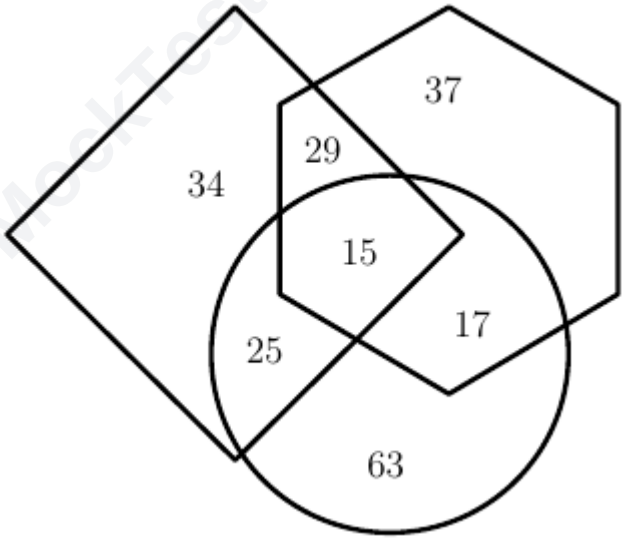
(a) Shimla, Himachal Pradesh
(b) Jaipur, Rajasthan
(c) Gandhinagar, Gujarat
(d) Amritsar, Punjab

Q16. _____ is a hardware device generally located on the motherboard of a computer and acts as an internal memory of the CPU.

(a) RAM
(b) CD-ROM
(c) Floppy
(d) DVD-ROM

Q17. Study the given diagram and answer the question that follows.

The hexagon represents women, the circle represents writers, and the quadrilateral represents Bengali.



How many women writers are Bengali?

(a) 15
(b) 40
(c) 57
(d) 32

Q18. The ratio of the HCF to the LCM of numbers 10, 25 and 35 is:

(a) 1 : 70
(b) 70 : 1
(c) 35 : 1
(d) 1 : 35

Q19. The tableau of Uttar Pradesh was adjudged the best at thecc in 2021. The award was given by:

(a) Narendra Modi
(b) Kiren Rijiju
(c) Anurag Thakur
(d) Amit Shah

Q20. Which of the following statements about the Charminar in Hyderabad is INCORRECT?

(a) It is built upon four grand arches facing North, South, East and West.
(b) It was built by Mohammed Quli Qutb Shah, in 1591.
(c) It marked the end of plague in the city.

(d) The arches support four floors of rooms and a gallery of archways.

Q21. Mean of the given observations x + 1, x + 3, x + 5, x + 7 and x + 9 is 6, then value of x is:

(a) 5
(b) 3
(c) 1
(d) 6

Q22. The equation of a line which passes through a point (1, 5) and perpendicular in the line x - y = 5, is

(a) x + y = 6
(b) x - y = 4
(c) y - x = 4
(d) x - y = 6

Q23. Which of the following statements with reference to the Indian Freedom Struggle is INCORRECT?

(a) The Mutiny of 1857 is regarded as the First War of Independence.
(b) Sheikh Mujibur Rahman played an important role in the freedom struggle of India.
(c) The Simon Commission arrived in Bombay in 1928.
(d) Bhagat Singh, Sukh Dev and Rajguru were executed in March 1931.

Q24. If the mean of observation x1, x2, x3, ..., x_n is bar x, then:

(a) $\sum_{i=1}^{n} (X_i + \bar{X}) = 0$
(b) $\sum_{i=1}^{n} (\bar{X} - X_i) = 0$
(c) $\sum_{i=1}^{n} (X_i - \bar{X})^2 = 0$
(d) $\sum_{i=1}^{n} (X_i - \bar{X}) = 0$

Q25. Which of the following statements with respect to the Jallianwala Bagh incident is INCORRECT?

(a) The Jallianwala Bagh was a result of the Rowlatt Act of March 1919, which authorised the government to imprison without a trial.
(b) The incident took place on 13 April 1919, when the publlic gathered at Jallianwala Bagh with an agenda.
(c) The Jallianwala Bagh incident was followed by the Chauri Chaura incident, where a large group of protesters clashed with the police.
(d) Brigadier-General Dyer opened fire at the people gathered, without giving any notice.

Q26. There are different types of Bills introduced in the Lok Sabha. Which of the following is NOT one of them?

(a) Revenue Bill
(b) Financial Bills
(c) Money Bills
(d) Ordinary Bills

Q27. The cube root of 250 lies between:

(a) 4 and 5
(b) 5 and 6
(c) 7 and 8
(d) 6 and 7

Q28. What is the angle between two lines x + y = 2 and x - y = 7?

(a) 30°
(b) 60°
(c) 90°
(d) 45°

Q29. PARAM Siddhi refers to:

(a) agricultural implements
(b) a nuclear reactor
(c) industrial piercing

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(d) an Artificial Intelligence supercomputer

Q30. If the first and last letters in the word 'ZIGZAGGING' were interchanged, and the same was done with the second and ninth letters, the third and eighth letters, and so on, then which letter will be the fifth letter from the right end?

(a) I
(b) Z
(c) A
(d) N

Q31. Which of the following statements about the third phase of Pradhan Mantri Kaushal Vikas Yojana launched in January 2021, is INCORRECT?

(a) It was spearheaded by the Ministry of skill Development and Entrepreneurship.
(b) It was launched in 600 districts across the country.
(c) It looked at training of eight lakh candidates over a scheme period from 2020 to 2030.
(d) More than 200 industrial training institutes under Skill India rolled out PMKVY 3.0 training build a robust pool of skilled professionals.

Q32. In between the Rabi and Kharif seasons, there is a short season known as:

(a) the Zaid season
(b) the Junaid season
(c) the Maize season
(d) the Rice season

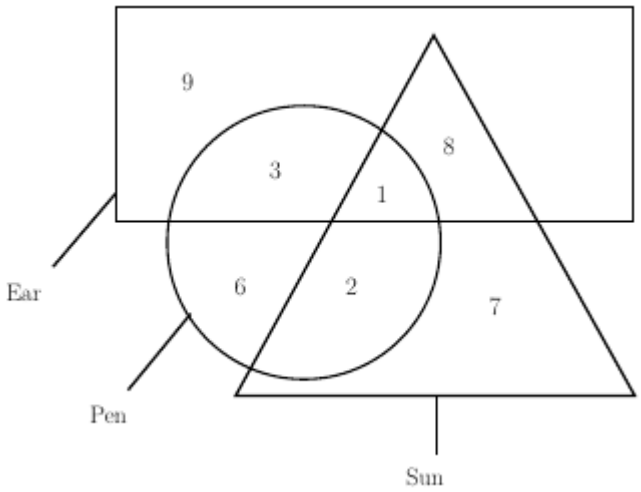
Q33. If (2/3)^(x + 1) = (3/2)^(x - 1) then x = ?

(a) 3
(b) 2
(c) -1
(d) 0

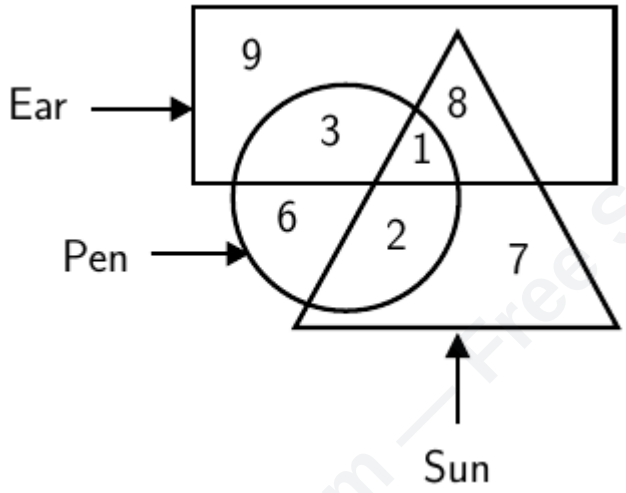
Q34. Ram and Shyam can complete a task in 12 and 15 days separately. Both together start doing the task Shyam leaves the task after 5 days. In how many days will Ram complete the remaining work?

(a) 15
(b) 12
(c) 3
(d) 5

Q35. Study the given diagram and answer the question that follows. The numbers in the diagram represent the counts in that particular category.



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How many Suns are Ears?

(a) 9
(b) 6
(c) 11
(d) 8

Q36. Radha sold a watch at the loss of 10%. If she had sold that watch for Rs. 120 more, she would have gained 10%. The cost price of the watch is:

(a) Rs. 600
(b) Rs. 800
(c) Rs. 500
(d) Rs. 700

Q37. B is A's mother.

C is D's brother.

There are three married couples - B and C; D and E; F and G

F is the father-in-law of E.

How B is related to G?

(a) Son's daughter
(b) Mother
(c) Son's wife
(d) Daughter

Q38. In a certain code language, LIFE is written as GHKN. How will PORT be written in that language?

(a) RQVT
(b) QPSU
(c) USPQ
(d) VTQR

Q39. Select the option in which the two words share a different relationship from that shared by the two words in the rest of the options.

(a) Big - Large
(b) Heavy - Light
(c) Cruel - Kind
(d) Good - Bad

Q40. B is Y's father. Q is the daughter of C. C is the sister of B. How is B related to Q?

(a) Mother's brother
(b) Mother's father
(c) Brother

(d) Father's brother

Q41. If 9 × log (x) = log (9) + log(27) + log (81), then x = ?

(a) 3
(b) 2
(c) 4
(d) 1

Q42. According to Jawaharlal Nehru, what are known as the 'temples of modern India"?

(a) Lakes
(b) Rivers
(c) Dams
(d) Forests

Q43. As per the Constitution of India, who does NOT form the Council of Ministers?

(a) Ministers who are members of Cabinet
(b) Ministers of State
(c) Deputy Ministers
(d) Ministers of local government

Q44. Two trains are moving in opposite decisions with the speeds of 60 km/h and 25 m/s respectively. What will be the speed of the second train with respect to a man sitting in the first train?

(a) 35 km/h
(b) 30 km/h
(c) 85 km/h
(d) 150 km/h

Q45. What is the sum of 1 + 2 + 3 + ... + 49 + 50 ?

(a) 2525
(b) 5050
(c) 1275
(d) 2550

Q46. Chandrayaan - 2 was launched on 22 July 2019. Which of the following about it is INCORRECT?

(a) It was the second lunar exploration mission developed by ISRO.
(b) The goal of the mission was to explore the North Pole of the moon.
(c) It was launched from the Satish Dhawan Space Centre, Sriharikota.
(d) It brought together an Orbiter, Lander and Rover.

Q47. What is the sum of fractional numbers 15/7 and 12/5 ?

(a) 34/25
(b) 34/49
(c) 34/35
(d) 35/35

Q48. What information about Engineers India Limited (EIL) is INCORRECT?

(a) It comes under the Ministry of Petroleum and Natural Gas.
(b) It is credited with establishing 11 and 12 mega petrochemical complexes in India.
(c) It is a private sector undertaking of the Government of India.
(d) It developed a state-of-the-art sports complex for the Commonwealth Games 2010 at the University of Delhi.

Q49. The Quit India Movement was important in the freedom struggle of India. Which of the following event followed the movement?

(a) Rowlatt Bill
(b) Dandi March
(c) Labour Government in Britain sent the Cabinet Mission to India

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(d) All India Muslim League was established in British India

Q50. The radius and height of a solid cylinder are 6 m and 5 m. How many solid spheres of radius 3 m can be formed from that cylinder?

(a) 10
(b) 5
(c) 4
(d) 8

Q51. Which of the following statements about Aurangzeb is INCORRECT?

(a) Aurangzeb's death led to the collapse of the Mughal empire in the mid-18^(th) century.
(b) He was the second son of Shah Jahan and Mumtaz Mahal.
(c) He was also known as Alamgir.
(d) In his struggle for power, Aurangzeb decisively defeated his brother % MathType!MTEF!2!1!+- % feaahqart1ev3aaatCvAUfeBSjuyZL2yd9gzLbvyNv2CaerbuLwBLn % hiov2DGi1BTfMBaeXatLxBI9gBaerbd9wDYLwzYbItLDharqqtubsr % 4rNCHbGeaGqiVu0Je9sqqrpepC0xbbL8F4rqqrFfpeea0xe9Lq-Jc9 % vqaqpepm0xbba9pwe9Q8fs0-yqaqpepae9pg0FirpepeKkFr0xfr-x % fr-xb9adbaqaaeGaciGaaiaabeqaamaabaabaaGcbaGaamiramaana % aabaGaamyyaaaacaWGYbWaa0aaaeaacaWGHbaaaaaa!39A1! Doverline a roverline a in a battle and confined his father in his own palace at Agra.

Q52. A train of length 250 m crosses a man in 10 s. What is the speed of the train?

(a) 75 km/h
(b) 90 km/h
(c) 45 km/h
(d) 60 km/h

Q53. What is the value of 20 - [16 ÷ {25 ÷ 5 - 2 × (12 - 20 ÷ 2)}] ?

(a) 2
(b) 3
(c) 4
(d) 1

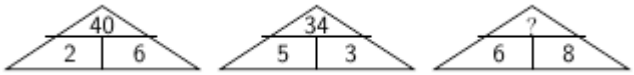
Q54. Bhabha Atomic Research Centre (BARC), Mumbai announced in January 2021 that it has 'evolved' the design for the country's first public-private partnership research reactor for the production of ____.

(a) medical radiology
(b) radiography medicines
(c) nuclear medicines
(d) diagnostic medicines

Q55. If a + b = ab then a : b = ?

(a) b : 1
(b) 1 : b - 1
(c) 1 : b
(d) b - 1 : 1

Q56. Study the given pattern carefully and select the number from among the given options that can replace the question mark (?) in it.



(a) 196
(b) 96
(c) 100
(d) 144

Q57. Select the option in which the words share the same relationship as that shared by the given pair of words.

Zero : Number

(a) Breeze : Storm
(b) Jupiter : Planet
(c) Plant : Animal
(d) Temperature : Celsius

Q58. Chandra Gupta Maurya was the founder of the Mauryan Dynasty. Which of the following statements regarding his rule in the History of India is INCORRECT?

(a) Chandra Gupta Maurya is credited with the setting up of the first nearly pan-India Empire.
(b) Bairam Khan was his best ally, mentor, and guide.
(c) Archaeological evidence of the empire shows existence of a number of towns and cities, the most prominent being the capital city of Pataliputra.
(d) He met Alexander and served in his army so as to learn the Macedonian way of warfare.

Q59. The following statement applies to which law from the given options?

'The line that joins any planet to the sun sweeps equal areas in equal intervals of time.'

(a) Law of Motion
(b) Law of Orbits
(c) Law of Periods
(d) Law of Areas

Q60. If x + y = 40 and x - y = 20, then the HCF of x and y is:

(a) 30
(b) 40
(c) 20
(d) 10

Q61. We should consider the value of final goods only while estimating GDP because:

(a) it increases the cost
(b) the value of intermediate goods includes the value of final goods
(c) It promotes production process in the economy.
(d) the value of final goods already includes the value of intermediate goods

Q62. If $\sec\theta + \tan\theta = 2 + \sqrt{3}$, then $\cos\theta$ = ?

(a) $(\sqrt{3})/2$
(b) $\sqrt{3}$
(c) 1 over 2
(d) 2

Q63. Read the given statements and conclusions carefully. Assuming that the information given in the statement is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. Some picks are locks.

2. No locks are rocks.

Conclusion:

1. Some picks are rocks.

2.. All picks are rocks.

(a) Only conclusion B follows.
(b) Only conclusion A follows.
(c) Both conclusion A and B follow.
(d) Neither conclusion A nor B follows.

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Q64. Endemic species are those species of plants and animals which:

(a) are found roaming freely in cities anywhere in the world
(b) are dangerous to environment
(c) are found exclusively in a particular area
(d) are dependent on air and water for survival

Q65. The value of √0.0121 + cbrt0.008 is:

(a) 0.11
(b) 0.2
(c) 0.31
(d) 0.21

Q66. Which Grand Slam Tennis Tournament did NOT take place in 2020 due to the pandemic?

(a) Australian Open
(b) Wimbeldon
(c) French Open
(d) US Open

Q67. If $x + y = -2$, then $x^3 + y^3 - 6xy = ?$

(a) -4
(b) -8
(c) 8
(d) 4

Q68. What is 2 over 5 as a percentage?

(a) 40%
(b) 50%
(c) 75%
(d) 20%

Q69. If $x^2 : 18 :: 12 : x$ then $x = ?$

(a) 3
(b) 5
(c) 4
(d) 6

Q70. In a certain code language, INTRODUCED is written as RMGILWFXVW. How will POPULATION be written in that language?

(a) KFLKOZRGLM
(b) KLKFOZGLRM
(c) KLKFOZLGRM
(d) KLKFOZGRLM

Q71. If L is coded as 15 and O is coded as 12, then which of the following options will be the code for LESSON?

(a) 1522881214
(b) 1522881213
(c) 1521881213
(d) 15228711213

Q72. Alt + Tab is a shortcut:

(a) to open edit options in the current programme
(b) to switch between open programmes
(c) to cut a selected item
(d) to open file menu options in the current programme

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Q73. What is the value of tan (15°)?

(a) √3 - 2
(b) -√3 - 2
(c) 2 - √3
(d) 2 + √3

Q74. The Parliament does not have the power to legislate on the subject in List 2 of the Seventh Schedule. Which of the following is an EXCEPTION in this general law?

(a) If the Prime Minister asks the Parliament to do so
(b) If the Judiciary asks the Parliament to do so
(c) if the Governor of the state certifies the requirement
(d) If the Rajya Sabha passes a resolution to this effect

Q75. What is the name of the stranded giant container ship, which was freed from the banks of the Suez Canal on 29 March 2021?

(a) Ever Green
(b) Ever Given
(c) Ever Patron
(d) Ever Supporter

Q76. A population of tumor cells has a constant growth at the rate of 5% per second. If the present population is 400 cells, what will be its population after two seconds?

(a) 410 cells
(b) 405 cells
(c) 440 cells
(d) 441 cells

Q77. What is the compound interest on Rs. 8,000 for 1 1/2 years at 21% per annum compounded annually?

(a) Rs. 2,628
(b) Rs. 2,580
(c) Rs. 2,520
(d) Rs. 2,648

Q78. Ishan makes a profit of 10% by selling a dress. If he had sold it for Rs. 150 less, Ishan would have been at the loss of 5%. What is the cost price of the dress?

(a) Rs. 1000
(b) Rs. 500
(c) Rs. 750
(d) Rs. 1250

Q79. Who was conferred the Lifetime Achievement Award at the International Film Festival of Boston in October 2020?

(a) Irrfan Khan
(b) Nana Patekar
(c) Shabana Azmi
(d) Om Puri

Q80. Pradhan Mantri Garib Kalyan Rojgar Abhiyan is a flagship programme by the Government of India, as of September 2020. Which of the following is NOT a feature of it?

(a) To facilitate the employment of migrant workers who have gone to their home states.
(b) Many projects involving migrant workers have also been initiated for building of roads, highways, etc.
(c) It has been initiated in 11 districts in Mission Mode.
(d) Under this campaign, rural infrastructure would be built with the involvement of migrant workers.

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Q81. As of August 2020, NHAI of India has set the timeline for a network of expressways and economic corridors for 2023-2025. Which of the following are NOT schedules for completition in 2023?

(a) Ahmedabad - Dholera
(b) Delhi - Mumbai
(c) Amritsar - Jamnagar
(d) Chennai - Salem

Q82. On the occasion of women's day 2021. Nita Ambani launched a social media and networking platform for women called _____.

(a) Women Love
(b) Her Circle
(c) Women Circle
(d) She Circle

Q83. When is World Bicycle Day globally celebrated?

(a) 6 June
(b) 4 May
(c) 6 May
(d) 3 June

Q84. The tributaries of rivers Ganga and Brahmaputra together from the Ganga - Brahmaputra basin in the Indian subcontinent. Which of the following is NOT a feature of the river basin?

(a) Ox-bow lakes dot the plain area.
(b) In the south is the Sundarbans Delta.
(c) It's a fertile area that includes most of north and east India.
(d) It is bound on the north by mountains and the foothills of the Himalayas.

Q85. Which soil is well known for its capacity to hold moisture?

(a) Laterite soil
(b) Alluvial soil
(c) Arid soil
(d) Black soil

Directions

Read the given information and answer the question that follows.

Mary and Therry's marks in a test are given in the following table. The test had 5 questions each carrying 10 marks.

Question No.	1	2	3	4	5
Mery's Marks	10	9	8	6	8
Therry's Marks	5	7	10	9	9

Q86. If 84% marks were required to achieve distinction in the given test, by how many marks did Therry miss the distinction?

(a) 3
(b) 4
(c) 2
(d) 5

Q87. What is the ratio of Mery and Therry's marks together in question 1 to Mery and Therry's marks together in question 3?

(a) 5 : 9
(b) 7 : 6
(c) 5 : 6
(d) 3 : 5

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Q88. What is the average of the marks obtained by Therry in the 5 questions?

(a) 8
(b) 10
(c) 9
(d) 40

Q89. If the minimum passing percentage for each question was 70%, then, Mery did not pass _____ number of questions and Therry did not pass _____ number of questions.

(a) 1, 1, respectively
(b) 1, 2, respectively
(c) 1, 0, respectively
(d) 0, 1, respectively

Q90. Select the term from among the given options that can replace the question mark (?) in the following series.

3L12, 5J10, 7H8, 9F6, 11D4, ?

(a) 13B4
(b) 9B6
(c) 13B2
(d) 13A6

Q91. Select the number from among the given options that can replace the question mark (?) in the following series.

2, 4, 10, 30, 105, ?

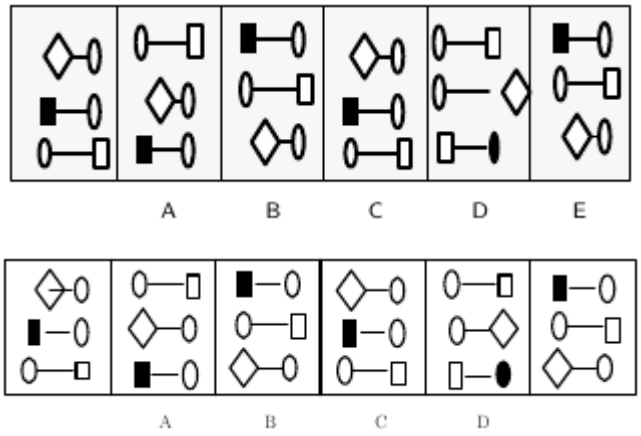
(a) 315
(b) 525
(c) 210
(d) 420

Q92. Select the word from among the given options that will replace the question marks in the given analogy, so that the relationship between the first term and the second term is the same as between the third term and the fourth term.

Cobbler : ? : : ? : Gold

(a) Goldsmith; Ornament
(b) Leather; Jeweller
(c) Merchant; Grain
(d) Shoe; Bride

Q93. The following six figures form a logical series except that one among A, B, C and D is incorrect. Identify the incorrect figure.



(a) D
(b) B
(c) C
(d) A

Q94. If 96 $ 24 @ 12 = 16, and 21 @ 57 $ 19 = 24, then 36 $ 6 @ 54 = ?

(a) 60
(b) 66
(c) 64
(d) 62

Q95. If 'B' means '÷', 'D' means '-', 'C' means '+' and 'A' means '×', then what will be the value of the following expression?

10A4D16B2C6

(a) 20
(b) 38
(c) 18
(d) 24

Q96. In a test paper, correct answers fetch three marks and there is a penalty of one mark for each wrong answer. A student who attempts 76 questions gets 144 marks. How many questions did the student get right?

(a) 55
(b) 58
(c) 53
(d) 60

Q97. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. All professors are heroes.

2. Some professors are bachelors.

Conclusion:

I. All heroes are bachelors.

II. Some bachelors are heroes.

(a) Only conclusion I follows.
(b) Both conclusions I and II follow.
(c) Neither conclusion I nor II follows.
(d) Only conclusion II follows.

Q98. P drives 6 km towards east of his office. He then drives 1 km south to reach the library, turns left and drives 2 km to reach the clinic, turns left and drives 2 km to reach the market, turns right and drives 1 km to reach his father-in-law's house and picks up his wife. Then, turning right, they drive 5 km to a restaurant for dinner.

From the information given above, which of the following options is CORRECT?

(a) If P drives 1 km west from the restaurant, takes a right turn and drives 3 km, he will reach the clinic.
(b) P's father-in-law's house is definitely less than 7 km away from the P's office.
(c) The library is towards north-west of the market.
(d) If P drives 5 km south from his office, takes a left turn and drives 9 km, he will reach the restaurant.

Q99. Select the option that is related to the third term in the same way as the second term is related to the first term.

Modern : Ancient :: Noise : ?

(a) Chaos
(b) Silence
(c) Unorganised
(d) Song

Q100. If 3 × 3 = 6, 3 ÷ 3 = 0, 3 - 3 = 9, and 3 + 3 = 1, then what will be the value of 6 - 4 ÷ 8 + 1 × 3?

(a) 21
(b) 0
(c) 78

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(d) 19

ANSWER KEY

1	b	2	d	3	c	4	b	5	c	6	b	7	d	8	d	9	a	10	c
11	b	12	d	13	c	14	d	15	c	16	a	17	a	18	a	19	b	20	d
21	c	22	a	23	b	24	d	25	c	26	a	27	d	28	c	29	d	30	c
31	c	32	a	33	d	34	c	35	a	36	a	37	c	38	d	39	a	40	a
41	a	42	c	43	d	44	d	45	c	46	b	47	c	48	c	49	c	50	b
51	b	52	b	53	c	54	c	55	b	56	c	57	b	58	b	59	d	60	d
61	d	62	c	63	d	64	c	65	c	66	b	67	b	68	a	69	d	70	d
71	b	72	b	73	c	74	d	75	b	76	d	77	d	78	a	79	d	80	c
81	d	82	b	83	d	84	b	85	d	86	c	87	c	88	a	89	a	90	c
91	d	92	b	93	a	94	a	95	b	96	a	97	d	98	a	99	b	100	d

SOLUTIONS

Q1. Answer: (b) NH-9

The correct answer is NH-9

Key Points

• National Highway 9 (NH 9) is one of the major national highways in India, spanning the states of Maharashtra in the west and Karnataka and Andhra Pradesh in the south.

• Beginning at Pune in Maharashtra, the highway extends for 841km and ends at Machilipatnam.

• NH 9 covers 336km in Maharashtra, 75km in Karnataka and 430km in Andhra Pradesh.

• It Forms a crucial link between the western and southern regions of India.

Additional Information

• NH-24 (National Highway 24)

• It Connects Delhi to Lucknow via Ghaziabad, Bareilly, and Sitapur.

• It is the Part of this highway is known as the Delhi-Meerut Expressway.

• It facilitates fast travel between Delhi and other cities in Uttar Pradesh.

• NH-27 (National Highway 27)

• It Extends from Porbandar (Gujarat) to Siliguri (West Bengal).

• It is the longest National Highway in India, running through multiple states like Gujarat, Rajasthan, Uttar Pradesh, Bihar, and West Bengal.

• It is Crucial for East-West connectivity and the transportation of goods across India.

• NH-7 (National Highway 7) (Renamed NH-44 under the new numbering system)

• It Runs from Varanasi (Uttar Pradesh) to Kanyakumari (Tamil Nadu), passing through Madhya Pradesh, Maharashtra, Telangana, Andhra Pradesh, Karnataka, and Tamil Nadu.

• One of the longest north-south highways in India, connecting culturally and economically diverse regions.

• Acts as a major arterial route for long-distance travel and freight transport.

Q2. Answer: (d) 0.1

Given:

(0.03) × (0.05) × (1.5)/0.0225

Calculation:

(0.03) × (0.05) × (1.5)/0.0225

=> (0.0015 × 1.5)/0.0225

=> 0.00225/0.0225

=> 0.1

Therefore The correct answer is 0.1.

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Q3. Answer: (c) Its full form is World Transport Organisation.

The correct answer is Its full form is World Transport Organisation

Key Points

• The INCORRECT statement about the WTO is Its full form is World Transport Organisation.

• The correct full form of WTO is World Trade Organization.

• WTO is an international organization set up in 1995 by replacing the General Agreement on Trade and Tariffs (GATT) under the Marrakesh Agreement.

• The World Trade Organization (WTO) is the only global international organization dealing with the rules of trade between nations.

• The WTO has 164 members (including European Union) and 23 observer governments (like Iran, Iraq, Bhutan, Libya etc).

• Its HQ is located in Geneva, Switzerland.

• Currently, WTO has 164 members and India is a founding member of WTO.

• Currently, the head (Director-General) of WTO is Roberto Azevedo.

Additional Information Objectives of WTO

• To formulate and implement rules for international trade.

• To provide a platform for negotiating and monitoring further trade liberalization.

• To provide a platform for the settlement of disputes.

• Providing assistance to the developing, least-developed, and low-income countries in transition to adjust to WTO rules and disciplines through technical cooperation and training.

• To cooperate with the other major economic institutions (like UN, World Bank, IMF, etc) involved in global economic management.

Q4. Answer: (b) Pepper

The correct answer is Pepper

Key Points

• While salt, sodium benzoate, and sodium metabisulphite are all commonly used as preservatives for pickles,

• pepper is primarily a spice and does not have preservative properties

• It has some antibacterial properties, it is not potent or reliable enough to act as a primary preservative for pickles.

• It inhibit microbial growth to prevent spoilage over time.

Additional Information

• Sodium benzoate

• Sodium benzoate is a chemical compound widely used as a preservative in food and beverages.

• Chemical Formula: C7H5NaO2

• Sodium benzoate is synthesized by neutralizing benzoic acid with sodium hydroxide.

• Sodium metabisulphite

• Sodium metabisulphite, also known as sodium pyrosulfite, is a widely used chemical compound with various applications across industries.

• Chemical Formula: Na2S2O5

• It Acts as a preservative and antioxidant.

• It is Commonly used to prevent browning and spoilage in dried fruits, juices, and wines.

• Also used to maintain the color of processed foods.

Q5. Answer: (c) 144√5

Given:

(2 + √5)4 - (2 - √5)4

Formula Used:

(a + b)^4 = a^4 + b^4 + 4a³b + 6a²b² + 4ab³.

(a - b)4 = a4 + b4 - 4a3b + 6a2b2 - 4ab3.

(a + b)4 - (a - b)4 = 8a3b + 8ab³

Calculation:

(2 + √5)4 - (2 - √5)4

=> 8(2³)√5 + 8 × 2 × √5³

=> 144√5

Therefore The correct answer is 144√5

Q6. Answer: (b) To regulate the menstrual cycle

The correct answer is To regulate the menstrual cycle

Key Points

• Estrogen is the female sex hormone produced in the adrenal glands, ovaries, and fatty tissue, which is mainly responsible for the development of breasts in puberty and the growth of the uterus lining during the menstrual cycle.

• In females, the estrogen hormone prepares the uterus and other reproductive organs for pregnancy.

• It also regulates the menstrual cycle, growth of pubic and underarm hair

• It also maintains bone strength by collaborating with calcium, vitamin D, and other essential vitamin and minerals.

Additional Information

• Functions of Estrogen Hormone:

1. It keeps cholesterol in control.

2. Regulation of the menstrual cycle.

3. Regulates the development and functioning of the uterus.

4. It is mainly responsible for the changes that take place during pregnancy.

5. It is also responsible for secondary sexual characteristics and reproductive development during puberty.

6. It plays a vital role in the growth and development of the uterus, changes in the uterus during the menstrual cycle, widening of the pelvis, breast, increasing growth of the vagina and hair on the body.

Q7. Answer: (d) 30

The logic followed here is:

Hence, "Option 4" is the correct answer.

Q8. Answer: (d) 13 m

Given:

The length, width and height of a cuboid are 4 m, 3 m and 12 m

Formula Used:

The length of the longest side that can be put inside the cuboid

=> $\sqrt{(l^2 + b^2 + h^2)}$

Calculation:

According to the question,

=> √(16 + 9 + 144)

=> √169

=> 13 m

Therefore The length of the longest side that can be put inside the cuboid will be 13 m.

Q9. Answer: (a) INS Arihant

The correct answer is INS Arihant.

Key Points

• INS Arihant, a 6,000-tonne submarine is the lead ship of India's Arihant class of nuclear-powered ballistic missile submarines built under the Advanced Technology Vessel (ATV) project.

• In 2018 (November) INS Arihant conducted its first deterrence patrol.

• India is the sixth country to have a nuclear triad i.e. capable of delivering nuclear weapons by aircraft, ballistic missiles and submarine-launched missiles.

• Other countries having nuclear triad are Russia, the United States, United Kingdom, France, and China.

Important Points

• According to the data from the Indian Navy, currently, there are 2 nuclear submarines and 15 conventional submarines in its fleet.

• The two nuclear submarines in the fleet are INS Arihant and INS Chakra.

• Out of these INS Chakra has been leased from Russia.

Additional Information

• INS Vikrant is an aircraft carrier constructed by Cochin Shipyard in Kochi, Kerala for the Indian Navy. It is the first aircraft carrier to be built in India.

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• INS Trikand is a Talwar-class frigate of the Indian Navy built by the Yantar shipyard in Kaliningrad, Russia.

• INS Sindhurakshak was a Russian-made Kilo-class 877EKM diesel-electric submarine of the Indian Navy. Commissioned on 24 December 1997.

Q10. Answer: (c) 63LG

The logic followed here is:

Hence, "Option 3" is the correct answer.

Q11. Answer: (b) 1 and 3

The logic followed here is :-

From the given four different dices the adjacent sides are as shown below :

As 1 is common on both the dices I and III, it is clear that 4, 6, 2, and 5 are adjacent to it, and the remaining i.e. 3 will be opposite to it.

Opposite pairs:

6 → 5

4 → 2

1 → 3

So, out of all the options, '1 and 3' is a pair of opposite faces.

Hence, the correct answer is "Option 2".

Q12. Answer: (d) It started with three original member countries.

The correct answer is It started with three original member countries.

Key Points

• The statement that is incorrect about the Association of Southeast Asian Nations (ASEAN) is that it started with three original member countries.

• ASEAN was established with five founding members: Indonesia, Malaysia, the Philippines, Singapore, and Thailand, on 8 August 1967 in Bangkok.

• The Association of Southeast Asian Nations (ASEAN) is a regional organization that aims to promote political, economic, and social stability and cooperation in Southeast Asia.

• The organization's motto is "One Vision, One Identity, One Community"

Additional Information

• India ASEAN Relations

• India frequently participates in ASEAN-led platforms like the East Asia Summit and the Defence Forum.

• India has emphasized the importance of ASEAN and India relations in its Indo-Pacific strategy on numerous occasions.

• The Comprehensive Economic Cooperation Agreement (CECA) has served as the foundation and hub of the India ASEAN relations since 2005.

• India’s foreign policy is based on its ties with ASEAN.

• India’s “continuing determination” to expand its relationship with ASEAN nations was exemplified by the ASEAN-India and East Asia summits.

• Plus, there are Regional Forum and the Ministers Meeting.

• There has also been an increase in capital inflows, notably in the quality of FDI coming from ASEAN.

• The business and financial relationship between India and ASEAN has been continuously improving.

• Both India and ASEAN have commemorated 25 years of discussion collaboration, 15 years of summit-level engagement, and five years of strategic collaboration underneath the subject “Shared Values, Common Destiny.”

Q13. Answer: (c) They are warm-blooded.

The correct answer is They are warm-blooded

Key Points

• Warm-blooded is not a characteristic of Pisces, which are aquatic animals with a two-chambered heart.

• Pisces, the true jawed vertebrates, are equipped with distinct organs for breathing, excreting, and circulating blood.

• As poikilotherms, they are unable to control their body temperature.

• Essentially, all types of fish fall under this category.

Additional Information

• Characteristics of Pisces

• They inhabit fresh, marine, and brackish water.

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• Most have a streamlined body, while some boast a spindle-shaped or elongated body.
• Their body structure consists of a head, trunk, and tail.
• They use their tail for swimming.
• Paired and unpaired fins serve as their appendages, aiding in balance during swimming.
• The lateral line system acts as a sensory organ, detecting disturbances in the surrounding environment.
• Thick-seated scales cover their body, offering protection to internal organs.
• Gills facilitate their respiration.
• Closed blood circulation is observed.
• Their internal skeleton can be bony or cartilaginous.
• They are cold-blooded creatures.
• Their diet can be herbivorous or carnivorous, and they can be oviparous or ovoviviparous.
• Sexes are distinct.
• Fertilization can either be internal or external.
• They lack extra-embryonic membranes.
• The digestive system is well-developed.
• The nervous system consists of the brain and ten pairs of cranial nerves.

Q14. Answer: (d) Arthropoda

The correct answer is Arthropoda

Key Points

• Arthropoda is not one of the groups that plants are divided into.
• Arthropoda is part of the animal kingdom
• Arthropoda is the largest phylum in the animal kingdom.
• It includes animals like cockroaches, crabs, scorpions, and centipedes.

Additional Information

• Bryophytes are the amphibian of the plant kingdom.
• They have a unique feature as compared to other green plant groups that are their sporophyte is attached to the gametophyte.
• Bryophytes are the first land inhabitant plants.
• The ciliated sperms and archegonia are present in bryophytes.
• Thallophytes is a polyphyletic group of non-motile organisms traditionally described as thalloid plants.
• They are simple or lower plants.
• Archegonium is absent in thallophyta.
• Thallophtes are an abandoned division of kingdom Plantae which includes fungi, algae, lichens, and some kinds of bacteria, bryophytes, and slime molds.
• Gymnosperms are also known as acrogymnosperms.
• It is a group of seed-producing plants.
• It includes conifers, cycads, ginkgo, and gnetophytes.
• The word gymnosperms in greek means naked seeds because they do not have an outer covering or shell around their seeds.
• They do not produce flowers i.e they are non-flowering plants and neither do they produce fruits. Its pollination is done by the wind (Anemophilous).
• Angiosperms are also known as Angiospermae or Magnoliophyta.
• They are flowering and seed-producing plants.
• It consists of 64 orders, 416 families, approximately 13,000 known genera, and 3,00,000 known species.
• Their seeds develop in the ovaries of flowers and are surrounded by a protective fruit.
• Examples of angiosperms are fruits, vegetables, grains, and flowers.
• Angiosperms are classified as Monocotyledons (monocots) and Dicotyledons (dicots) where monocots are flowering plants whose seeds contain only one embryonic leaf or cotyledon and dicots are flowering plants whose seeds contain two embryonic leaves or cotyledons.
• Pteridophytes are known as the Vascular cryptogams because they are the first non-seeded plants to have a vascular system present.
• They are also called vascular crypto games.
• They are used for medicinal purposes.
• They are not completely differentiated into root, stem, and leaves.

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Q15. Answer: (c) Gandhinagar, Gujarat

The correct answer is Gandhinagar, Gujarat

Key Points

• The 3rd Global Potato Conclave was held in Gandhinagar, Gujarat, from 28th to 31st January 2021.

• The event was organized with the aim of discussing key issues related to potato production, processing, and trade at the global level.

• The conclave served as a platform for experts, researchers, and industry leaders from across the world to collaborate on potato-based research and innovations.

• The topics covered included potato farming practices, biotechnology, climate change impacts, and the development of new potato varieties.

• The event was attended by representatives from the International Potato Centre (CIP), the Indian Potato Association (IPA), and the Indian Council of Agricultural Research (ICAR), as well as various stakeholders from the global agricultural community.

Additional Information ICAR

• The Indian Council of Agricultural Research (ICAR) was first reorganized in 1965.

• The Indian Council of Agricultural Research (ICAR) is an autonomous organization.

• It is under the Department of Agricultural Research and Education (DARE), Ministry of Agriculture and Farmers Welfare, Government of India.

• The Indian Council of Agricultural Research (ICAR) was formally known as the Imperial Council of Agricultural Research.

• The ICAR has its headquarters in New Delhi.

• There are a total of 101 ICAR institutes and 71 agricultural universities spread across the country.

Q16. Answer: (a) RAM

The correct answer is RAM

Key Points

• Random Access Memory (RAM) is a hardware device that is located on the motherboard of a computer and acts as the internal memory of the CPU

• RAM attaches directly to the motherboard, and is used to store programs that are currently running.

• RAM is a set of integrated circuits that allow the stored data to be accessed in any order (why it is called random).

• RAM is a volatile memory, which means that it does not store data or instructions permanently.

Additional Information

• CD-ROM

• CD-ROM. Stands for "Compact Disc Read-Only Memory".

• A CD-ROM is a CD that can be read by a computer with an optical drive.

• CD-ROM is made up of clear polycarbonate plastic, coated with reflective material and a protective coat of clear lacquer.

• CD-ROM can hold up to 700 Megabytes of data, roughly 3,00,000 typewritten pages.

• CD-ROM can only be read by CD-ROM Readers. Normal readers cannot read the CD-ROM disks.

• Floppy

• Floppy Disk is a type of disk storage composed of a disk of thin and flexible magnetic storage medium.

• It is used for backup purpose.

• It is a type of secondary storage

• DVD-ROM

• DVD-ROM is a data storage device in which information, once written, cannot be modified.

• This 'write' protection affords the assurance that the data cannot be tampered with once it is written to the device.

Q17. Answer: (a) 15

According to the given Venn diagram:

The shaded region represents the number of women writers who are Bengali.

So, the number of women writers who are Bengali = 15

Hence, the correct answer is "Option 1".

Q18. Answer: (a) 1 : 70

Calculation:

LCM of 10, 25, 35 is 350

HCF of 10, 25, and 35 is 5

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The ratio of the HCF to the LCM of numbers

=> 5 : 350

=> 1 : 70

Therefore The ratio of the HCF to the LCM of numbers is 1 : 70.

Q19. Answer: (b) Kiren Rijiju

The correct answer is Kiren Rijiju

Key Points

• Uttar Pradesh's tableau at the 2021 Republic Day parade was declared the best by the Ministry of Defence.

• This tableau depicted the cultural heritage and achievements of the state, including the theme of Ayodhya: Cultural Heritage of Uttar Pradesh, showcasing the Ram Mandir.

• The award for the best tableau was presented by Union Minister Kiren Rijiju on behalf of the Defence Ministry

• Union Minister Kiren Rijiju was serving as the Minister of State for Youth Affairs and Sports at the time.

Additional Information

• Republic Day Parade

• The Republic Day Parade starts from Rashtrapati Bhavan every year

• The parade ends at the India Gate.

• The first parade was held in 1950.

• The unfurling of the national flag on republic day is done by the President of India.

• The beating retreat ceremony signifies the end of the parade.

• The Beating Retreat Ceremony takes place on January 29 every year.

Q20. Answer: (d) The arches support four floors of rooms and a gallery of archways.

The correct answer is The arches support four floors of rooms and a gallery of archways

Key Points

• While the Charminar has four grand arches, it does not have four floors of rooms and a gallery of archways.

• Instead, the structure has a central dome with a mosque on the top floor and the arches facing different directions.

• The Charminar is a striking example of Indo-Islamic architecture, with a combination of Persian, Mughal, and Hindu influences.

• The structure is square in shape, with each side measuring 20 meters

Additional Information

• The Charminar ("Four Minarets"), constructed in 1591, is a monument and mosque located in Hyderabad.

• Char Minar is located on the banks of River Musi in Hyderabad.

• The landmark has become a global icon of Hyderabad, listed among the most recognized structures of India.

• It was built by Muhammad Quli Qutb Shah to celebrate the end of a deadly plague.

• Architect of Char Minar - Mir Momin Astarawadi.

Q21. Answer: (c) 1

Given:

Mean of the given observations x + 1, x + 3, x + 5, x + 7 and x + 9 is 6

Formula Used:

Mean = Sum of observation/Number of Observation

Calculation:

6 = (x + 1 x + 3 + x + 5 + x + 7 + x + 9)/5

=> 30 = 5x + 25

=> 5x = 5

=> x = 1

Therefore The value of x is 1

Q22. Answer: (a) x + y = 6

Shortcut Trick

The perpendicular line to Ax + By = C is always of the form Bx − Ay = k.

Given line: 1x − 1y = 5 (where A = 1, B = −1).

Equation of perpendicular line: (−1)x − (1)y = k => x + y = k (multiplying by −1).

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Since it passes through point (1, 5), substitute x = 1 and y = 5: 1 + 5 = 6.

Therefore, k = 6, and the required equation is x + y = 6.

Therefore The correct answer is x + y = 6.

Alternate Method

Given: Equation of line is x − y = 5 and it passes through point (1, 5).

Formula used: Slope-intercept form y = mx + c and point-slope form y − y1 = m(x − x1).

=> First, find the slope (m1) of the line x − y = 5.

=> y = x − 5, so slope m1 = 1.

=> Let m2 be the slope of the line perpendicular to it.

=> m1 × m2 = −1

=> 1 × m2 = −1 => m2 = −1.

=> Using point-slope form for point (1, 5) and slope m2 = −1:

=> y − 5 = −1(x − 1)

=> y − 5 = −x + 1

=> x + y = 1 + 5

=> x + y = 6

Therefore The correct answer is x + y = 6.

Additional Information

Perpendicular Lines Property

If two lines with slopes m1 and m2 are perpendicular, the product of their slopes is always −1 (m1 × m2 = −1).

Parallel Lines Property

If two lines are parallel, their slopes are equal (m1 = m2). The equation of a line parallel to Ax + By = C is Ax + By = k.

Point-Slope Form

The equation of a line passing through (x1, y1) with slope m is given by y − y1 = m(x − x1).

Q23. Answer: (b) Sheikh Mujibur Rahman played an important role in the freedom struggle of India.

The correct answer is Sheikh Mujibur Rahman played an important role in the freedom struggle of India.

Key Points

• Sheikh Mujibur Rahman was a prominent political figure in Bangladesh

• He is known as the "Father of the Nation" of Bangladesh.

• In 1952, Sheikh Mujib led the Language Movement in East Pakistan, demanding that Bengali be recognized as one of the official languages of Pakistan

• He played a key role in the Bangladesh Liberation War in 1971, but he was not involved in India's freedom struggle.

Additional Information

• The Mutiny of 1857 (First War of Independence)

• The Mutiny of 1857, also known as the Indian Rebellion of 1857 or the Sepoy Mutiny,

• It is regarded as a pivotal event in Indian history and is often called the First War of Independence.

• It was an armed uprising against British rule that started as a revolt of Indian soldiers (called sepoys) in the British East India Company’s army.

• The rebellion began in May 1857 in Meerut when sepoys mutinied and killed their British officers.

• The revolt quickly spread to other parts of northern and central India, including Delhi, Kanpur, and Lucknow.

• The Simon Commission (1928)

• The Simon Commission was appointed by the British government in 1927 under the leadership of Sir John Simon.

• Its purpose was to review the political situation in India and recommend constitutional reforms.

• The lack of representation sparked widespread protests throughout India, led by leaders such as Lala Lajpat Rai, Jawaharlal Nehru, and Subhas Chandra Bose.

• They demanded that the Indian population be included in any decision-making process regarding the country’s future.

• The slogan “Simon Go Back” was coined during this period as a sign of rejection of the commission.

• The Execution of Bhagat Singh, Sukh Dev, and Rajguru (1931)

• Bhagat Singh, along with his associates Sukh Dev and Rajguru, was involved in revolutionary activities aimed at overthrowing British rule through direct action.

• They were influenced by the ideology of radical nationalism and believed that violent resistance was necessary to bring an end to British imperialism.

• Bhagat Singh is most famous for his involvement in the bombing of the Central Legislative Assembly in Delhi in 1929.

• The goal was not to kill anyone but to protest against repressive laws.

• Despite this act of defiance, Bhagat Singh and his associates were arrested, and during the trial, they used the courtroom as a platform to advocate for their cause.

Q24. Answer: (d) $\sum_{i=1}^{n} (X_i - \bar{X}) = 0$

Given:

If the mean of observations x1, x2, x3, ..., x_n is x, we need to evaluate the following expressions:

$\sum_{i=1}^{n} (X_i + X)$

$\sum_{i=1}^{n} (X - X_i)$

$\sum_{i=1}^{n} (X_i - X)^2$

$\sum_{i=1}^{n} (X_i - X)$

Solution:

Step 1: Evaluate $\sum_{i=1}^{n} (X_i - X)$

The mean X is defined as:

$X = 1/n \sum_{i=1}^{n} X_i$

The deviation of each observation from the mean is $(X_i - X)$.

By definition, the sum of deviations from the mean is always zero:

$\sum_{i=1}^{n} (X_i - X) = 0$.

Step 2: Other options

$\sum_{i=1}^{n} (X_i + X) \neq 0$, as it includes the summation of the mean for each observation.

$\sum_{i=1}^{n} (X - X_i)$ is equivalent to $-\sum_{i=1}^{n} (X_i - X) = 0$, but this is not explicitly asked.

$\sum_{i=1}^{n} (X_i - X)^2 \neq 0$, as it represents the sum of squared deviations, which is positive unless all observations are identical.

The correct statement is:

$\sum_{i=1}^{n} (X_i - X) = 0$.

Q25. Answer: (c) The Jallianwala Bagh incident was followed by the Chauri Chaura incident, where a large group of protesters...

The correct answer is The Jallianwala Bagh incident was followed by the Chauri Chaura incident, where a large group of protesters clashed with the police.

Key Points

• The statement that is incorrect about the Jallianwala Bagh incident is that the Chauri Chaura incident followed the Jallianwala Bagh incident

• The Jallianwala Bagh massacre took place on April 13, 1919, in Amritsar, Punjab, British India.

• The massacre was a result of the Rowlatt Act of March 1919, which gave the government the power to imprison people without a trial.

• The massacre occurred when Brigadier-General Dyer ordered his troops to fire on a crowd of people protesting the Rowlatt Act and the arrest of pro-Indian independence activists.

• The Jallianwala Bagh massacre led to the Non-cooperation movement, which sought to secure India's independence.

Additional Information

• Rowlatt Act of March 1919

• The Rowlatt Act was passed by the government under the period of Lord Chelmsford.

• It was passed in February 1919.

• Every single Indian member of the Central Legislative Council opposed it.

• The act authorised the government to imprison any suspect without trial and conviction in the court of law.

• It enables the government to suppress the habeas corpus.

• They wanted to replace the provision of repression during wartime Defence of India Act 1915 by a permanent law.

• It was based on the report of Justice S.A.T. Rowlatt's Committee of 1918.

• The act was resented by the Indian public and opposed by all Indian members of the Council.

• Gandhi organised a protest movement which led to the Massacre of Amritsar (April 1919).

• The act was never actually implemented.

• The Chauri Chaura incident occurred at Chauri Chaura in the Gorakhpur district (Uttar Pradesh) on 4 February 1922, when a large group of protesters, participating in the Non-cooperation movement, clashed with police, who opened fire.

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• As the incident turned violent Mahatma Gandhi has called off the 'Non-cooperation Movement' on 12 February 1922, as a direct result of this incident.

Q26. Answer: (a) Revenue Bill

The correct answer is Revenue Bill

Key Points

• There is no category called "Revenue Bill" in the formal classification of Bills in the Indian Parliament,

• Although "revenue" may be part of discussions in Money Bills or Financial Bills.

• The term is often used informally to describe any bill related to the generation of revenue for the government,

• particularly those that deal with the collection of taxes or financial resources.

Additional Information

• Types of Bill-There are four types of bills in our Constitution.

• Ordinary bill-Ordinary bill is a bill that can be introduced in either by houses of any minister or member of the both houses.

• Money bill-Money Bill refers to a bill that is introduced in the Lower Chamber of Indian Parliament(Lok Sabha) which generally covers the issue of spending and receipt of money, such as law-related with, laws of any governing borrowing, and also government expenditure.

• Finance bill-Finance Bill is a secret bill introduced each year in Lok Sabha(Lower chamber of the Parliament) immediately after the implementation of the Union Budget, to enact some effect to the financial proposals of the Government of India.

• Constitutional amendment bills-Bills seeking to amend all other provisions of the Constitution including those enumerated in the provision to article 368(2), are called by the title 'Constitution Amendment Bills'.These Bills can be introduced in the House of Parliament.

Q27. Answer: (d) 6 and 7

Given:

The cube root of 250

Formula used:

Let x be the cube root of 250

$x = 2501/3$

Calculations:

$6^3 = 216$

$73 = 343$

$\Rightarrow 63 < 250 < 73$

$\Rightarrow 6 < 2501/3 < 7$

Therefore The correct answer is option (4).

Q28. Answer: (c) 90°

Concept:

• If a line makes an angle θ with the x-axis then the slope of the line is tanθ.

• If a line has an equation of the form y = mx + c then its slope is m and the intercept of the line with y-axis is c.

• If there are two lines with slopes m1 and m2 and the angle between the two of them is φ then $\tan \varphi = (m2-m1)/(1+m1m2)$

Calculation:

Given, the two lines are x + y = 2 and x - y = 7

Now, for the first line, the equation can be written as y = -x + 2, and comparing it with the equation y = mx + c we can say that the slope of the first line m1 = -1.

The second line can be written in the form y = x - 7 and comparing it with the equation y = mx + c we can say that the slope of the second line m2 = 1

Now, according to the formula, if the angle between the two lines is φ then

$\tan \varphi = 2/(1+(-1\times 1))=\infty \Rightarrow \varphi=90°$

Q29. Answer: (d) an Artificial Intelligence supercomputer

The correct answer is an Artificial Intelligence supercomputer

Key Points

• PARAM Siddhi is an Artificial Intelligence supercomputer developed by the Centre for Development of Advanced Computing (C-DAC) in India.

• It was inaugurated in 2020 and is designed to handle high-performance computing tasks, including AI applications, machine

learning, and data processing.

• PARAM Siddhi is among the fastest supercomputers in India

• It is part of the country's initiative to boost its capabilities in advanced computing and AI research.

Additional Information

Vijay P. Bhatkar

• Bhatkar is best known as the architect of India's national initiative in supercomputing where he led the development of Param supercomputers.

• He developed the first Indian supercomputer, the PARAM 8000, in 1991 and later the PARAM 10000 in 1998.

• Based on the PARAM series of supercomputers, he built the National Param Supercomputing Facility (NPSF) which is now made available as a grid computing facility through the Garuda grid on the National Knowledge Network (NKN) providing nationwide access to High-Performance Computing (HPC) infrastructure.

• Currently, Bhatkar is working on exascale supercomputing via the capability, capacity, and infrastructure of NKN. He has also been involved with ICT initiatives such as the development of GIST multilingual technology, MKCL's computer literacy program for computers, and Education to Home (ETH) for providing coaching on ICT-related examinations.

Q30. Answer: (c) A

Given word: ZIGZAGGING

According to the question, the first and last letters were interchanged, and the same was done with the second and ninth letters, the third and eighth letters, and so on:

The new letter cluster formed is → GNIGGAZGIZ

So, the fifth letter from the right end will be:

(Left end) GNIGGAZGIZ (Right end) → A

Hence, "Option 3" is the correct answer.

Q31. Answer: (c) It looked at training of eight lakh candidates over a scheme period from 2020 to 2030.

The correct answer is It looked at training of eight lakh candidates over a scheme period from 2020 to 2030.

Key Points

• The third phase of the Pradhan Mantri Kaushal Vikas Yojana (PMKVY 3.0), launched in January 2021, had a different target for training candidates.

• It aimed at training 8 lakh candidates over a period of 2020-2023, not 2030.

• The scheme’s focus was on enhancing skill development to support India's workforce,

• particularly in response to the challenges posed by the COVID-19 pandemic.

Additional Information

• Pradhan Mantri Kaushal Vikas Yojana (PMKVY)

• Launch

• India’s largest Skill Certification Scheme - Pradhan Mantri Kaushal Vikas Yojana (PMKVY) - was launched on 15th July 2015 (World Youth Skills Day).

• Aim

• To encourage and promote skill development in the country by providing free short-duration skill training and incentivizing this by providing monetary rewards to youth for skill certification.

• Implementation

• PMKVY is implemented by the National Skills Development Corporation (NSDC) under the guidance of the Ministry of Skill Development and Entrepreneurship (MSDE).

• Features:

• It envisages training of eight lakh candidates over a scheme period of 2020-2021 with an outlay of Rs. 948.90 crore.

• The 729 Pradhan Mantri Kaushal Kendras (PMKKs), impaneled non-PMKK training centers and more than 200 Industrial Training Institutes (ITIs) under Skill India will be rolling out PMKVY 3.0 training to build a robust pool of skilled professionals.

• It will be more trainee- and learner-centric. The focus is on bridging the demand-supply gap by promoting skill development in areas of new-age and Industry 4.0 job roles.

• It will be a propagator of vocational education at an early level for youth to capitalize on industry-linked opportunities.

• The National Educational Policy 2020 also puts focus on vocational training for holistic growth and increased employability.

Q32. Answer: (a) the Zaid season

The Correct Answer is the Zaid season

Key Points

• A short season between the rabi season and the kharif season is called zaid.
• Zaid crops are crops from the summer season. They grow mainly from March to June in a long time span.
• During a time called the "Zaid crop season," these crops are grown mainly in the summer season.
• They require warm dry weather as a major growth time and a longer flowering day.
• Boro is sown in the month of March during the spring and is grown in May.
• The crop cultivated from July to August is also known as Aus.
Additional Information Types of Crops
• Two major types of crops grow in India. Namely, Kharif and Rabi..
• Kharif Crops
• The word Kharif is Arabic for autumn since the season coincides with the beginning of autumn or winter.
• As cultivation of these crops happens in the monsoon season, another name for Kharif crop is monsoon crop.
• The Kharif season differs in every state of the country but is generally from June to September.
• We sow the crop at the beginning of the monsoon season around June and harvest by September or October. Rice, maize, bajra, ragi, soybean, groundnut, cotton are all Kharif crops.
• Rabi Crops
• The Arabic translation of the word Rabi is spring.
• As these crops harvest in the springtime hence the name.
• The Rabi season usually starts in November and lasts up to March or April.
• Cultivation of Rabi crop is mainly through irrigation since monsoons are already over by November.
• In fact, unseasonal showers in November or December can ruin the crop.
• Farmers sow the seeds at the beginning of autumn, which results in a spring harvest.
• Wheat, barley, mustard, and green peas are some of the major rabi crops that grow in India.

Q33. Answer: (d) 0

Given:
(2/3)^(x + 1) = (3/2)^(x - 1)
Calculation:
(2/3)^(x + 1) = (3/2)^(x - 1)
=> (2/3)^(x + 1) = (2/3)^(1 - x)
=> x + 1 = 1 - x
=> x = 0
Therefore The correct answer is 0

Q34. Answer: (c) 3

Given:
Ram and Shyam can complete a task in 12 and 15 days
Both together start doing the task Shyam leaves the task after 5 days.
Calculation:
LCM of 12 and 15 = 60 Unit (Total Work)
Efficiency of Ram = 60/12 = 5 unit per day
Efficiency of Shyam = 60/15 = 4 unit per day
According to the question, Shyam leaves the task after 5 days, means both work together 5 days
=> (5 + 4) × 5
=> 45 unit
Remaining work = 60 - 45 = 15 unit, done by Ram
=> 15/5 = 3 days
Therefore Ram complete the remaining work will be 3 days.

Q35. Answer: (a) 9

According to the given Venn diagram:
The shaded region represents the number of Suns which are Ears.
So, the number of Suns which are Ears = (1 + 8) = 9
Hence, the correct answer is "Option 1".

Q36. Answer: (a) Rs. 600

Given:

Radha sold a watch at a loss of 10%.

If she had sold that watch for Rs. 120 more, she would have gained 10%.

Formula Used:

Selling Price (SP) at loss = Cost Price (CP) - Loss

Selling Price (SP) at gain = Cost Price (CP) + Gain

Calculation:

Let the Cost Price (CP) of the watch be Rs. x.

Given that she sold the watch at a loss of 10%, so the Selling Price (SP) = x - 0.1x = 0.9x

If she had sold the watch for Rs. 120 more, she would have gained 10%, so new Selling Price (SP) = x + 0.1x = 1.1x

According to the question,

1.1x - 0.9x = 120

=> 0.2x = 120

=> x = 120 / 0.2

=> x = 600

The cost price of the watch is Rs. 600.

Q37. Answer: (c) Son's wife

Given statement:

1) B is A's mother

2) C is D's brother.

3) There are three married couples - B and C; D and E; F and G

4) F is the father-in-law of E.

Here, B is G's daughter-in-law or son's wife.

Hence, the correct answer is "Option 3".

Q38. Answer: (d) VTQR

The logic followed here is:

LIFE is written as GHKN

Similarly,

PORT is written as

Hence, "Option 4" is the correct answer.

Q39. Answer: (a) Big - Large

The logic followed here is:

Option 1) Big - Large => Incorrect

Big and large are synonyms.

Option 2) Heavy - Light => Correct

Heavy and light are antonyms.

Option 3) Cruel - Kind => Correct

Cruel and Kind are antonyms.

Option 4) Good - Bad => Correct

Good and bad are antonyms.

Hence, "Option 1" is the correct answer

Q40. Answer: (a) Mother's brother

Given statement:

1) B is Y's father.

2) C is the sister of B.

3) Q is the daughter of C.

Here, B is Q's maternal uncle or mother's brother.

Hence, the correct answer is "Option 1".

Q41. Answer: (a) 3

Given:

If 9 × log (x) = log (9) + log(27) + log (81)

Formula Used:

log(a) + log(b) = log(a × b)

log(a^b) = b × log(a)

Calculation:

log(9) = log(3^2) = 2 × log(3)

log(27) = log(3^3) = 3 × log(3)

log(81) = log(3^4) = 4 × log(3)

=> log(9) + log(27) + log(81) = 2 × log(3) + 3 × log(3) + 4 × log(3)

=> log(9) + log(27) + log(81) = (2 + 3 + 4) × log(3)

=> log(9) + log(27) + log(81) = 9 × log(3)

Given equation: 9 × log(x) = log(9) + log(27) + log(81)

=> 9 × log(x) = 9 × log(3)

=> log(x) = log(3)

=> x = 3

The correct answer is option 1.

Q42. Answer: (c) Dams

The correct answer is Dams

Key Points

• Former PM Pt. Jawaharlal Nehru said dams as temples of modern India while starting the construction of Bhakra Nangal Dam.

• Construction of the dam was started in 1948 and Pt. Jawaharlal Nehru poured the first bucket of concrete on 17th November 1955.

• Bhakra Nangal Dam is constructed on the Sutlej river in the Bilaspur district of Himachal Pradesh.

• The height, length, and width of the Bhakra dam are 226 m, 518.25 m, and 9.1 m respectively.

• The dam is located near the upstream Bhakra village in Bilaspur district of Himachal Pradesh.

• The reservoir of the dam is known as "Gobind Sagar".

Additional Information

• Jawaharlal Nehru was the first Prime Minister of India.

• He is the Prime Minister who has had the longest term in office.

• He served as the prime minister of India from 15th August 1947 to 1964.

• He is the architect of the Preamble of the Indian constitution.

• He was the Prime Minister of India during the Indo-China war in 1962.

• He served as the first chairman of the planning commission of India.

• He was honored with the Bharat Ratna in 1955.

• The name Panchayati raj was given by Jawaharlal Nehru.

• National herald is the newspaper started by Jawaharlal Nehru.

• He is the first prime minister to die in harness.

• Shantivan is the cremation ground of Jawaharlal Nehru.

Q43. Answer: (d) Ministers of local government

The correct answer is Ministers of Local government

Key Points

• Ministers of local government are not a recognized category in the Council of Ministers as per the Constitution.

• The Constitution specifies the Council of Ministers to be composed of Cabinet Ministers, Ministers of State, and Deputy Ministers.

• Lord Ripon is regarded as the father of local self-government in India

• Jim McMahon is Minister of State for Local Government

Additional Information

• The cabinet ministers head the important ministries of the Central government like home, defence, finance, external affairs, and so forth.

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• They are members of the cabinet, attend its meetings and play an important role in deciding policies.

• Thus, their responsibilities extend over the entire gamut of the Central government.

• The ministers of state can either be given independent charge of ministries/ departments or can be attached to cabinet ministers.

• In case of attachment, they may either be given the charge of departments of the ministries headed by the cabinet ministers or allotted specific items of work related to the ministries headed by cabinet ministers.

• In both cases, they work under the supervision and guidance as well as under the overall charge and responsibility of the cabinet ministers.

• In the case of an independent charge, they perform the same functions and exercise the same powers in relation to their ministries/departments as cabinet ministers do.

• However, they are not members of the cabinet and do not attend the cabinet meetings unless specially invited when something related to their ministries/ departments is considered by the cabinet.

Q44. Answer: (d) 150 km/h

Shortcut Trick

Relative speed in opposite directions is the sum of individual speeds (S1 + S2).

Speed of the first train = 60 km/h.

Speed of the second train = 25 m/s = 25 × (18/5) = 90 km/h.

Relative speed with respect to the man = 60 + 90 = 150 km/h.

Therefore The correct answer is 150 km/h.

Alternate Method

Given:

Speed of the first train (S1) = 60 km/h

Speed of the second train (S2) = 25 m/s

Direction = Opposite

Formula Used:

1. Speed (km/h) = Speed (m/s) × 18/5

2. Relative Speed (Opposite Direction) = S1 + S2

Calculations:

=> Convert S2 to km/h:

=> S2 = 25 × 18/5

=> S2 = 5 × 18 = 90 km/h

=> Since the man is in the first train, his speed is 60 km/h.

=> Relative speed of the second train with respect to the man = S1 + S2

=> Relative speed = 60 km/h + 90 km/h

=> Relative speed = 150 km/h

Therefore The correct answer is 150 km/h.

Additional Information

Relative Speed Concept

When two objects move toward each other (opposite direction), the relative speed is the sum of their speeds: V_(rel) = V1 + V2.

Relative Speed in Same Direction

When two objects move in the same direction, the relative speed is the difference between their speeds: V_(rel) = |V1 − V2|.

Unit Conversion Rule

To convert m/s to km/h, multiply by 18/5. To convert km/h to m/s, multiply by 5/18.

Observation Point

The relative speed of an object with respect to a passenger in a moving vehicle is equivalent to the relative speed between the two vehicles.

Q45. Answer: (c) 1275

Given:

We need to find the sum of the series 1 + 2 + 3 + ... + 49 + 50.

Formula Used:

Sum of first n natural numbers = n(n + 1)/2

Calculation:

Here, n = 50

Sum = 50(50 + 1)/2

Sum = 50 × 51/2

Sum = 2550/2

Sum = 1275

The sum of the series 1 + 2 + 3 + ... + 49 + 50 is 1275.

Q46. Answer: (b) The goal of the mission was to explore the North Pole of the moon.

The correct answer is The goal of the mission was to explore the North Pole of the moon.

Key Points

• Chandrayaan-2's primary goal was to explore the lunar surface, particularly the South Pole, not the North Pole.

• The mission aimed to explore the possibility of water ice in the permanently shadowed regions near the lunar South Pole.

• The mission had a suite of 13 scientific instruments, designed to study the moon's surface, mineral composition, and water molecules.

• These instruments were housed on the orbiter, lander (Vikram), and rover (Pragyan).

Additional Information

• Chandrayaan-2 is the second lunar exploration mission developed by the Indian Space Research Organisation (ISRO), after Chandrayaan-1.

• It consists of a lunar orbiter, and also included the Vikram lander, and the Pragyan lunar rover, all of which were developed in India.

• The main scientific objective is to map and study the variations in lunar surface composition, as well as the location and abundance of lunar water.

• The spacecraft was launched on its mission to the Moon from the second launch pad at the Satish Dhawan Space Centre in Andhra Pradesh in 2019 by a GSLV Mark III-M1.

• The craft reached the Moon's orbit on 20 August 2019 and began orbital positioning manoeuvres for the landing of the Vikram lander. The lander and the rover were scheduled to land on the near side of the Moon, in the south polar region at a latitude of about 70° south on 6 September 2019 and conduct scientific experiments for one lunar day, which approximates to two Earth weeks.

• A successful soft landing would have made India the fourth country after the Luna 9 (Soviet Union), Surveyor 1 (United States) and Chang'e 3 (China) to do so.

• The mission's lander is called Vikram.

• About this sound Pronunciation named after cosmic ray scientist Vikram Sarabhai, who is widely regarded as the founder of the Indian space programme.

• Vikram crash-landed during this attempt.

• However, the lander crashed when it deviated from its intended trajectory while attempting to land.

• According to a failure analysis report submitted to ISRO, the crash was caused by a software glitch. ISRO may re-attempt a landing in 2022 with Chandrayaan-3.

Q47. Answer: (c) 34/35

Given:

Fractional numbers: 1^5/7 and 1²/5

Formula Used:

Sum of fractions = (Whole number part + Fractional part)

Calculation:

Convert mixed fractions to improper fractions:

1^5/7 = 1 + 5/7 = (7 + 5)/7 = 12/7

1²/5 = 1 + 2/5 = (5 + 2)/5 = 7/5

Find the common denominator:

LCD of 7 and 5 = 35

Convert fractions to have common denominator:

12/7 = 12 × 5 / 7 × 5 = 60/35

7/5 = 7 × 7 / 5 × 7 = 49/35

Sum the fractions:

60/35 + 49/35 = 109/35

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Convert improper fraction back to mixed number:

109/35 = 3^4/35

The sum of 1^5/7 and 1²/5 is 3^4/35.

Q48. Answer: (c) It is a private sector undertaking of the Government of India.

The correct answer is It is a private sector undertaking of the Government of India.

Key Points

• The statement "It is a private sector undertaking of the Government of India" is incorrect about Engineers India Limited (EIL)

• EIL is a leading global engineering consultancy and project management company that was established in 1965.

• It has regional offices in Chennai, Vadodara, and Kolkata, and a branch office in Mumbai.

• The Owner is Government of India (51.32%)

Additional Information

• Engineers India Limited (EIL) is a public sector undertaking under the Ministry of Petroleum and Natural Gas, Government of India..

• EIL has been instrumental in the development of major petrochemical complexes and is credited with the establishment of several large-scale projects across India.

• It offers services such as project management, feasibility studies, and consultancy for various infrastructure projects.

• The company has been involved in the design and construction of numerous refineries, petrochemical plants, and fertilizer plants across India and abroad.

Q49. Answer: (c) Labour Government in Britain sent the Cabinet Mission to India

The correct answer is Labour Government in Britain sent the Cabinet Mission to India

Key Points

• The Labour Government in Britain sent the Cabinet Mission to India after the Quit India Movement

• The Labour government in Britain, which came to power in 1945, recognized the need to address India’s aspirations.

• In 1946, they sent the Cabinet Mission to India to negotiate the transfer of power and discuss constitutional reforms.

• This mission was a direct response to the mounting pressure for Indian independence, and it followed the Quit India Movement, which had highlighted the demand for immediate self-rule.

Additional Information

• Quit India movement was started on 8th August 1942 and is also known as August Kranti.

• The immediate cause for the movement was the collapse of the Cripps Mission.

• Gandhiji gave the call “Do or Die” in his speech delivered at the Gowalia Tank Maidan.

Q50. Answer: (b) 5

Given:

Radius of the solid cylinder = 6 m

Height of the solid cylinder = 5 m

Radius of the solid spheres = 3 m

Formula Used:

Volume of a cylinder = $\pi \times r^2 \times h$

Volume of a sphere = $(4/3) \times \pi \times r^3$

Calculation:

Volume of the cylinder:

Volume of the cylinder = $\pi \times 6^2 \times 5$

Volume of the cylinder = $\pi \times 36 \times 5$

Volume of the cylinder = 180π m³

Volume of one sphere:

Volume of one sphere = $(4/3) \times \pi \times 3^3$

Volume of one sphere = $(4/3) \times \pi \times 27$

Volume of one sphere = 36π m³

Number of spheres formed:

Number of spheres = Volume of the cylinder / Volume of one sphere

Number of spheres = $180\pi / 36\pi$

Number of spheres = 5

The number of solid spheres that can be formed from the cylinder is 5.

Q51. Answer: (b) He was the second son of Shah Jahan and Mumtaz Mahal.

The correct answer is He was the second son of Shah Jahan and Mumtaz Mahal.

Key Points

• Aurangzeb was actually the third son of Shah Jahan and Mumtaz Mahal, not the second.

• His older brothers were Dara Shikoh and Shah Shuja.

• Aurangzeb's rise to the throne was marked by a brutal war of succession against his brothers.

• Dara Shikoh, the eldest, was defeated and executed, while Aurangzeb imprisoned his father Shah Jahan in the Agra Fort.

Additional Information

• Aurangzeb (1658 AD-1707 AD)

• He was crowned at Delhi under the title Alamgir.

• He captured Guru Teg Bahadur, the 9th Guru of Sikhs in 1675 AD and executed him when he refused to embrace Islam.

• The Mughal conquests reached a climax during Aurangzeb’s reign as Bijapur and Golconda were annexed in 1686 AD and 1687 AD, respectively.

• He forbade the inscription of Kalma on the coins and also forbade sati and Jharokha-darshan.

• He ended the celebration of Navroz and, in 1679 AD, reimposed Jizya.

• The only monument associated with Aurangzeb is Bibi ka Maqbara, which is the tomb of his wife Rabbia-ud-Daura, in Aurangabad.

• He died in 1707 after a 49-year reign without officially declaring a crown prince.

• Aurangzeb was the sixth, and widely considered the last effective Mughal Emperor.

• According to his wish, he was buried near the dargah of Sheikh Zainuddin, his "spiritual guru".

• His tomb is located in the village of Khuldabad, in the district of Aurangabad, but he died in Ahmednagar.

• He was initiated into the Naqshbandiya order.

Q52. Answer: (b) 90 km/h

Given:

Length of the train = 250 m

Time to cross a man = 10 s

Formula Used:

Speed = Distance / Time

Calculation:

Distance = 250 m

Time = 10 s

Speed in m/s = 250 / 10

Speed in m/s = 25 m/s

To convert m/s to km/h, multiply by 18/5

Speed in km/h = 25 × (18/5)

Speed in km/h = 25 × 3.6

Speed in km/h = 90 km/h

The speed of the train is 90 km/h.

Q53. Answer: (c) 4

Given:

Expression: 20 - [16 ÷ {25 ÷ 5 - 2 × (12 - 20 ÷ 2)}]

Formula Used:

Order of Operations (BODMAS/BIDMAS): Brackets, Orders (i.e. powers and square roots, etc.), Division and Multiplication, Addition and Subtraction.

Calculation:

Simplify the innermost brackets first:

12 - 20 ÷ 2

12 - 10

=> 2

Next, solve the expression inside the curly brackets:

25 ÷ 5 - 2 × 2

5 - 4

=> 1

Now, solve the expression inside the square brackets:

16 ÷ 1

=> 16

Finally, solve the outer expression:

20 - 16

=> 4

The correct answer is option 3.

Q54. Answer: (c) nuclear medicines

The correct answer is nuclear medicines

Key Points

• In January 2021, the Bhabha Atomic Research Centre (BARC) announced that it had designed the country's first public-private partnership (PPP) research reactor for the production of nuclear medicines.

• The reactor is part of the Department of Atomic Energy's (DAE) Aatma Nirbhar Bharat initiatives.

• The reactor aims to boost the production of radioisotopes for medical purposes, particularly for use in diagnostics and cancer treatment.

• This initiative represents a significant step in fostering collaboration between the government and private entities in the nuclear sector.

Additional Information

• Bhabha Atomic Research Centre:

• It was established in 1954.

• Its headquarters is in Trombay, Mumbai.

• Earlier, it was known as Atomic Energy Establishment.

• At present, BARC house has eight research reactors:

• Apsara, a one MW Swimming pool-type reactor.

• Cirus, a 40 MW reactor.

• Dhruva, a 100 MW high power nuclear research reactor.

• Zerliana, Purnima I, Purnima II, Purnima III and Kamini

• It comes under the aegis of the Department of Atomic Energy.

Important Points

• Other Atomic Research Centres in India:

• Atomic Minerals Directorate for Exploration and Research (AMD) is located in Hyderabad.

• Indira Gandhi Centre for Atomic Research (IGCAR) is located in Kalpakkam, Tamil Nadu.

• Variable Energy Cyclotron Centre (VECC) is located in Kolkata.

Q55. Answer: (b) 1 : b - 1

Calculation:

a + b = ab

=> b = ab - a

=> b = a(b - 1)

So,

a : b

=> a : a(b - 1)

=> 1 : (b - 1)

Hence, the correct answer is 1 : (b - 1).

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Q56. Answer: (c) 100

The logic followed here is:

$2^2 + 6^2 = 40$

4 + 36 = 40

40 = 40 (LHS = RHS)

And,

52 + 32 = 34

25 + 9 = 34

34 = 34 (LHS = RHS)

Similarly,

62 + 82 = ?

36 + 64 = ?

100 = ?

Hence, "Option 3" is the correct answer.

Q57. Answer: (b) Jupiter : Planet

The logic followed here is:

Logic: Category and its Member.

Here,

Zero : Number → Zero is a member of the category Number.

Similarly,

Jupiter : Planet → Jupiter is a member of the category Planet.

Hence, the correct answer is "Option 2".

Q58. Answer: (b) Bairam Khan was his best ally, mentor, and guide.

The correct answer is Bairam Khan was his best ally, mentor, and guide.

Key Points

• The statement that is incorrect about Chandra Gupta Maurya's rule in India is that Bairam Khan was his best ally, mentor, and guide

• Chandragupta Maurya was the founder of the Maurya Dynasty and is credited with establishing the first nearly pan-India Empire.

• He ruled from 324 to 297 BCE.

• Bairam Khan was not associated with Chandragupta Maurya

• He served as a mentor and guide to the Mughal emperor Akbar.

Additional Information

Maurya Empire

• The Mauryan Empire, which formed around 321 B.C.E, and ended in 185 B.C.E, was the first pan-Indian empire, an empire that covered most of the Indian region.

• It spanned across central and northern India as well as over parts of modern-day Iran.

• Bindusara, Chandragupta's son, assumed the throne around 300 B.C.E.

• He kept the empire running smoothly while maintaining its lands.

• Bindusara's son, Ashoka, was the third leader of the Mauryan Empire. A

• Ashoka left his mark on history by erecting large stone pillars inscribed with edicts that he issued.

• After leading a bloody campaign against Kalinga (a region on the central-eastern coast of India), Ashoka reevaluated his commitment to expanding the empire and instead turned to Buddhism and its tenet of nonviolence.

• After Ashoka's death, his family continued to reign, but the empire began to break apart.

• The last of the Mauryas, Brihadratha, was assassinated by his commander in chief—a man named Pushyamrita who went on to found the Shunga Dynasty—in 185 B.C.E.

Q59. Answer: (d) Law of Areas

The correct answer is Law of Areas

Key Points

• According to the law of areas, the line joins any planet to the sun sweeps equal areas in equal intervals of time.

• When the planet is closer to the Sun (at perihelion), it moves faster, sweeping out a narrow but long area.

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• When the planet is farther from the Sun (at aphelion), it moves slower, sweeping out a wide but shorter area.

• This ensures the areas are equal in equal times.

Additional Information

• Law of Orbits

• The Law of Orbits is the first law of Kepler's Laws of Planetary Motion, which describes the shape of the path a planet takes as it orbits the Sun.

• Planets do not move in perfect circles but rather in elliptical (oval-shaped) paths.

• An ellipse has two fixed points called foci.

• The Sun is located at one of these foci, not at the center of the ellipse.

• Law of Periods

• The Law of Periods is the third law of Kepler's Laws of Planetary Motion, describing the relationship between the orbital period of a planet and the size of its orbit.

• Planets farther from the Sun have longer orbital periods because they travel greater distances and move more slowly due to weaker gravitational forces.

• This law applies not only to planets but also to moons, satellites, and other celestial objects orbiting a massive body.

• Law of Motion

• The Laws of Motion were formulated by Sir Isaac Newton and are fundamental principles in classical mechanics.

• These laws describe the relationship between the motion of an object and the forces acting on it.

Q60. Answer: (d) 10

Given:

x+y=40x+y=40x+y=40x+y=40x+y=40x+y=40x+y=40

x−y=20x−y=20x−y=20x−y=20x−y=20x−y=20x−y=20

Formula Used:

HCF of two numbers

Calculation:

Adding the two equations:

x+y+x−y=40+20x+y+x−y=40+20x+y+x−y=40+20x+y+x−y=40+20x+y+x−y=40+20x+y+x−y=40+20x+y+x−y=40+20

=> 2x=602x=602x=602x=602x=602x=602x=60

=> x=30x=30x=30x=30x=30x=30x=30

Subtracting the second equation from the first:

x+y−(x−y)=40−20x+y−(x−y)=40−20x+y−(x−y)=40−20x+y−(x−y)=40−20x+y−(x−y)=40−20x+y−(x−y)=40−20x+y−(x−y)=40−20

=> 2y=202y=202y=202y=202y=202y=202y=20

=> y=10y=10y=10y=10y=10y=10y=10

The numbers are 30 and 10.

HCF of 30 and 10 is 10.

The correct answer is option 4:

The HCF of x and y is 10.

Q61. Answer: (d) the value of final goods already includes the value of intermediate goods

The correct answer is the value of final goods already includes the value of intermediate goods.

Key Points

• Gross Domestic Product (GDP) is a measure of the economic activity within a country. It calculates the total value of all final goods and services produced over a specific time period.

• Final goods are those that have been purchased for final use and not for resale or further processing. These include goods consumed by the ultimate consumer.

• Intermediate goods are those that are used as inputs to produce final goods. Including the value of intermediate goods in GDP would lead to double counting.

• To avoid double counting, GDP includes only the value of final goods and services. The value of intermediate goods is already embedded in the value of the final goods.

Additional Information

• Gross Domestic Product (GDP):

• GDP is a monetary measure that represents the market value of all final goods and services produced within a country during a specific period.

• It includes four main components: consumption, investment, government spending, and net exports (exports minus imports).

• GDP can be measured using three approaches: the production approach, the income approach, and the expenditure approach.

• Final Goods:

• Final goods are products that are ultimately consumed rather than used in the production of another good.

• Examples include consumer goods like food, clothing, and appliances, as well as capital goods like machinery and equipment used by businesses.

• Intermediate Goods:

• Intermediate goods are products used in the production process to produce other goods, which are then sold to the end consumer.

• Examples include raw materials like cotton used to make textiles, or parts like microchips used in the production of electronic devices.

• Including intermediate goods in GDP calculations would result in double counting, as their value is already encapsulated in the final product's price.

• Double Counting:

• Double counting refers to the error of counting the same product more than once in GDP calculations.

• This occurs if both intermediate and final goods are included, leading to an overestimation of a country's economic output.

• To avoid this, GDP calculations include only the value of final goods and services.

Q62. Answer: (c) 1 over 2

Given:

$\sec\theta + \tan\theta = 2 + \sqrt{3}$

Formula Used:

$\sec\theta = 1/(\cos\theta)$

$\tan\theta = (\sin\theta)/(\cos\theta)$

$\sec^2\theta = 1 + \tan^2\theta$

Calculation:

Let $x = \sec\theta$

$y = \tan\theta$. We have:

$x + y = 2 + \sqrt{3}$

From the identity, we know:

$x^2 = 1 + y^2$

$\Rightarrow (\sec\theta)^2 = 1 + (\tan\theta)^2$

Substitute $x = \sec\theta y = \tan\theta$:

$\Rightarrow x = 1/(\cos\theta)$ and $y = (\sin\theta)/(\cos\theta)$

$\Rightarrow 1/(\cos^2\theta) = 1 + (\sin^2\theta)/(\cos^2\theta)$

$\Rightarrow 1/(\cos^2\theta) = 1/(\cos^2\theta)$

Given $\sec\theta + \tan\theta = 2 + \sqrt{3}$, let's find $\cos\theta$.

Substitute back:

$\Rightarrow \cos\theta = 1/(\sec\theta)$

Therefore, the value of $\cos\theta$ should satisfy the given condition:

Since option 3 is the correct answer:

$\Rightarrow \cos\theta = 1/2$

The correct answer is option 3:

$\cos\theta = 1/2$

Q63. Answer: (d) Neither conclusion A nor B follows.

The least possible Venn diagram for the given statements is as shown below :

Conclusions:

1. Some picks are rocks → Does not follow (As some picks are locks and no locks are rocks. So it is possible but not definite.)

2. All picks are rocks → Does not follow (As some picks are locks and no locks are rocks. As some part of picks is common with locks which cannot be rocks, therefore it is false.)

Therefore Here, Neither conclusion A nor B follows.

Hence, the correct answer is "Option 4".

Q64. Answer: (c) are found exclusively in a particular area

The correct answers are found exclusively in a particular area

Key Points

• Endemic species are plants and animals that are found exclusively in a specific area and are not naturally found anywhere else.

• For example, kangaroos are endemic to Australia.

• Endemic species are more vulnerable to extinction because of their geographic isolation.

• When their habitats are lost, their populations can be dramatically reduced.

• Endemic species are also at a higher risk from climate change.

Additional Information

• In contrast

• Endangered species:

• These are the species which are in danger of extinction.

• Animals whose numbers are diminishing to a level that they might face extinction are known as endangered animals.

• The survival of such species is difficult if the negative factors that have led to a decline in their population continue to operate.

• Examples of such species are blackbuck, crocodile, Indian wild ass, Indian rhino, and lion-tailed macaque.

Q65. Answer: (c) 0.31

Given:

The value of √0.0121 + cbrt0.008 is:

Formula Used:

To find the sum of square roots:

√a + √b

Calculation:

√0.0121 = 0.11

√0.008 = 0.2

=> 0.11 + 0.2

=> 0.31

The correct answer is option 3, which is 0.31.

Q66. Answer: (b) Wimbeldon

The correct answer is Wimbeldon

Key Points

• The Grand Slam Tennis Tournament that did NOT take place in 2020 due to the pandemic was Wimbledon

• Wimbledon 2020 was canceled for the first time since World War II due to the COVID-19 pandemic.

• The Australian Open took place before the pandemic spread globally, while the French Open was rescheduled to September, and the US Open was held as planned but with strict restrictions.

• Wimbledon 2020 was covered by an insurance policy specifically designed for pandemics, which allowed the organizers to recover a significant portion of the financial losses caused by the cancellation.

Additional Information

Grand Slam	Scheduled Dates	Status	Key Highlights
Australian Open	January 20 – February 2	Held	Played as scheduled before the pandemic spread globally.
French Open	May 24 – June 7	Postponed (Sept 27 – Oct 11)	Rescheduled to late September; matches played under strict health protocols.
Wimbledon	June 29 – July 12	Canceled	Canceled for the first time since World War II; organizers benefited from pandemic insurance.
US Open	August 31 – September 13	Held	Played without spectators; implemented a bio-secure bubble to ensure player and staff safety.

Q67. Answer: (b) -8

Given:

x + y = -2

Formula Used

$x^3 + y^3 = (x + y)(x^2 - xy + y^2)$

$x^2 + y^2 = (x + y)^2 - 2xy$

Calculation:

We start with the given equation:

x + y = -2

x3 + y3 - 6xy

$x^2 + y^2$:

$x2 + y2 = (x + y)^2 - 2xy$

$x2 + y2 = (-2)^2 - 2xy$

x2 + y2 = 4 - 2xy

$x^3 + y^3$:

$x3 + y3 = (x + y)(x^2 - xy + y^2)$

$x3 + y3 = (-2)(x^2 - xy + y^2)$

x2 + y2 = 4 - 2xy :

x3 + y3 = -2(x2 - xy + y2)

x3 + y3 = -2((4 - 2xy) - xy)

x3 + y3 = -2(4 - 3xy)

x3 + y3 = -8 + 6xy

x3 + y3 - 6xy :

x3 + y3 - 6xy = -8 + 6xy - 6xy

x3 + y3 - 6xy = -8

The correct answer is option 2.

Q68. Answer: (a) 40%

Given:

Fraction = 2/5

Formula Used:

Percentage = (Fraction) × 100

Calculation:

Fraction = 2/5

Percentage = 2/5 × 100

=> Percentage = (2 × 100) / 5

=> Percentage = 200 / 5

=> Percentage = 40

Therefore The percentage is 40%

Q69. Answer: (d) 6

Given:

x2 : 18 :: 12 : x

Calculation:

x2 : 18 :: 12 : x

$=> x^2/18 = 12/x$

$=> x^2 \times x = 18 \times 12$

$=> x^3 = 216$

$=> x = \sqrt[3]{216} = 6$

Therefore The correct answer is option (4).

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Q70. Answer: (d) KLKFOZGRLM

The logic followed here is:

INTRODUCED is written as RMGILWFXVW

Similarly,

POPULATION is written as

Hence, "Option 4" is the correct answer.

Q71. Answer: (b) 1522881213

Given:

L is coded as 15 and O is coded as 12.

Formula Used:

Code for each letter = (Position of letter in alphabet) + 3

Calculation:

Let's find the code for each letter in LESSON:

L: Position = 12, Code = 12 + 3 = 15

E: Position = 5, Code = 5 + 3 = 8

S: Position = 19, Code = 19 + 3 = 22

S: Position = 19, Code = 19 + 3 = 22

O: Position = 15, Code = 15 + 3 = 18

N: Position = 14, Code = 14 + 3 = 17

Combining these codes:

Code for LESSON = 1522881213

The correct answer is option 2.

Q72. Answer: (b) to switch between open programmes

The correct answer is to switch between open programmes

Key Points

• Alt + Tab is a keyboard shortcut that switches between open applications or windows

• How to use

• Press and hold the Alt key, then press the Tab key repeatedly to cycle through the thumbnails of open windows.

• When you release both keys, the selected window will become active.

• Alt + Tab is a useful shortcut when you have multiple applications open and need to switch between them quickly without using the mouse or taskbar.

• The Alt + Tab shortcut has been in Microsoft Windows since Windows 1.0 (1985).

• It was originally named Task Switcher, and in Windows Vista it was called Flip.

Additional Information

• On Windows 10, when you use the "Alt + Tab" keyboard shortcut, you'll open the task switcher, which is an experience that allows you to view and switch back and forth between the two most recent applications or any other running task, by pressing and holding the "Alt" key and using the "Tab" key to cycle through.

Q73. Answer: (c) 2 - √3

Formula Used:

tan(A - B) = (tan A - tan B) / (1 + tan A tan B)

tan 45° = 1

tan 30° = 1/√3

Calculation:

Using the Tangent Subtraction Formula

tan(A - B) = (tan A - tan B) / (1 + tan A tan B)

tan(15°) = tan(45° - 30°) = (tan 45° - tan 30°) / (1 + tan 45° tan 30°)

tan(15°) = (1 - 1/√3) / (1 + 1 × 1/√3)

tan(15°) = (√3 - 1) / (√3 + 1)

tan(15°) = [(√3 - 1) / (√3 + 1)] × [(√3 - 1) / (√3 - 1)]

tan(15°) = (4 - 2√3) / 2

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tan(15°) = 2 - √3

Therefore The correct answer is option 3.

Q74. Answer: (d) If the Rajya Sabha passes a resolution to this effect

The correct answer is If the Rajya Sabha passes a resolution to this effect

Key Points

• The exception to the general law that Parliament does not have the power to legislate on the subject in List 2 of the Seventh Schedule is if the Rajya Sabha passes a resolution to this effect.

• The Seventh Schedule of the Constitution of India has three lists: the Union List, the State List, and the Concurrent List.

• These lists define the powers and functions of the Union and the States.

• Parliament can make laws on matters in the Union List, and State Legislatures can make laws on matters in the State List.

• Both the Union and the States can make laws on matters in the Concurrent List.

• However, Parliament can make laws on matters in the State List if the Rajya Sabha passes a resolution by a two-thirds majority of its members present and voting.

• The resolution must state that it is necessary for Parliament to make laws on the matter in the national interest.

Additional Information

• Legislative Functions of Parliament:

• The Parliament legislates on all matters mentioned in the Union List and the Concurrent List.

• In the case of the Concurrent List, where the state legislatures and the Parliament have joint jurisdiction, the union law will prevail over the states unless the state law had received the earlier presidential assent.

• However, the Parliament can any time, enact a law adding to, amending, varying, or repealing a law made by a state legislature.

• The Parliament can also pass laws on items in the State List under the following circumstances:

• If Emergency is in operation, or any state is placed under President's Rule (Article 356), the Parliament can enact laws on items in the State List as well.

• As per Article 253, it can pass laws on the State List items if it is required for the implementation of international agreements or treaties with foreign powers.

• According to Article 252, if the legislatures of two or more states pass a resolution to the effect that it is desirable to have a parliamentary law on any item listed in the State List, the Parliament can make laws for those states.

Q75. Answer: (b) Ever Given

The correct answer is Ever Given.

Key Points

• The name of the stranded giant container ship that was freed from the banks of the Suez Canal on 29 March 2021 is Ever Given.

• It became lodged in the canal on 23 March 2021, blocking one of the world's most important shipping routes for six days.

• This incident caused a significant disruption to global trade, with hundreds of ships delayed.

• The cause is due to Strong winds (up to 40 knots) and poor visibility due to a sandstorm

Additional Information

• Suez Canal:

• The 193.30 km (120 miles)-long Suez Canal is an artificial sea-level waterway located in Egypt and connects the Mediterranean Sea with the Gulf of Suez, a northern branch of the Red Sea.

• It was officially opened in November 1869, the Suez Canal is one of the most heavily used shipping routes in the world.

• The canal, which separates Asia from the African continent, offers the shortest maritime route between Europe and the regions that share a border with the Indian Ocean and the Western Pacific Ocean.

• It is a source of much-needed foreign currency for Egypt(It is controlled and managed by Egypt).

• In March 2021, the Ever Given supertanker -- a behemoth with a deadweight tonnage of 199,000 -- got stuck diagonally across the canal during a sandstorm.

Q76. Answer: (d) 441 cells

Given:

Initial population (P0) = 400 cells

Growth rate (r) = 5% per second = 0.05

Time (t) = 2 seconds

Formula used:

P(t) = P0 × (1 + r)^t

Calculation:
Population after 1 second:
$P(1) = 400 \times (1 + 0.05)^1 = 400 \times 1.05 = 420$ cells
Population after 2 seconds:
$P(2) = 400 \times (1 + 0.05)^2$
$P(2) = 400 \times (1.05)^2$
$P(2) = 400 \times 1.1025$
$P(2) = 441$ cells
Therefore The population of tumor cells after two seconds will be 441 cells.

Q77. Answer: (d) Rs. 2,648

Given:
Principal (P) = Rs. 8,000
Rate (R) = 21% per annum
Time (T) = 1.5 years
Formula Used:
Compound Interest (CI) = P(1 + R/100)^T - P
Calculation:
Let's calculate the amount (A) first:
A = 8000(1 + 21/100)^(1.5)
A = 8000(1 + 0.21)^(1.5)
A = 8000(1.21)^(1.5)
=> 8000 × 1331
A = 10648
Now, calculate the compound interest:
CI = A - P
CI = 10648 - 8000
CI = 2648
Therefore The correct answer is 2648.

Q78. Answer: (a) Rs. 1000

Given:
Ishan makes a profit of 10% by selling a dress.
If he had sold it for Rs. 150 less, he would have been at a loss of 5%.
Formula Used:
Selling Price (SP) = Cost Price (CP) + Profit
Profit% = (Profit / CP) × 100
Loss% = (Loss / CP) × 100
Calculation:
Let the Cost Price (CP) be Rs. x.
Profit of 10% means Selling Price (SP) = x + 10% of x = x + 0.1x = 1.1x
If SP is Rs. 150 less, then it would be a loss of 5%:
SP - 150 = x - 5% of x = x - 0.05x = 0.95x
1.1x - 150 = 0.95x
=> 1.1x - 0.95x = 150
=> 0.15x = 150
=> x = 150 / 0.15
=> x = 1000
The cost price of the dress is Rs. 1000.

Q79. Answer: (d) Om Puri

The correct answer is Om Puri
Key Points

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• Late Indian actor Om Puri was honoured with a Lifetime Achievement Award at the third edition of the India International Film Festival of Boston (IIFFB 2020).

• The award was received by his wife Nandita Puri.

• The three-day film festival, based in Boston USA.,

• It was held virtually from October 16 to 18.

Additional Information

• The International Film Festival (IFF) is a major event where films from various countries are showcased and celebrated.

• Major Festivals: Include well-known global events like:

• Cannes Film Festival (France): One of the most prestigious, held annually in May.

• Venice Film Festival (Italy): The oldest film festival, held annually in Venice.

• Berlin International Film Festival (Germany): A prominent festival held each February.

• Toronto International Film Festival (Canada): An important North American festival, often seen as a launching pad for Oscar contenders.

• Sundance Film Festival (USA): A key festival for independent films, held in Utah.

Q80. Answer: (c) It has been initiated in 11 districts in Mission Mode.

The correct answer is It has been initiated 11 districts in Mission Mode

Key Points

• The statement "It has been initiated in 11 districts in Mission Mode" is not a feature of the Pradhan Mantri Garib Kalyan Rojgar Abhiyan (GKRA)

• Features of the GKRA

• The GKRA was launched in 2020 to provide employment and livelihood opportunities to migrant workers and rural populations affected by the COVID-19 pandemic.

• The GKRA aimed to create public infrastructure and livelihood assets in villages.

• The GKRA provided employment to migrant workers in development schemes run by the Central and State Government.

• The GKRA involved 12 ministries and departments, and covered 25 categories of work.

• The GKRA provided employment to 670,000 migrant workers for 125 days.

• The GKRA involved construction activities, public works, and other economic activities.

Additional Information

• Advantages of PM Garib Kalyan Yojana

• Financial Inclusion: This is a scheme highly beneficial for the poorest sections in terms of direct financial support, ensuring that no one is left behind in this journey of economic progress.

• Food Security: The free food grains distributed to needy citizens ensure no hungry stomachs contribute towards malnutrition, especially at disaster phases like the COVID-19 pandemic, for betterment in public health.

• Social Security Measures: It is insurance, a pension scheme, and hence, therefore, leads to future security of the vulnerable sections of society like farmers, migrant workers, and people earning on a day-to-day wage basis.

• Rural Economy Boost: The program encourages rural employment and income generation basis through MGNREGA and thus boosts the rural economy.

• Health Benefits: The Ayushman Bharat Scheme provides health insurance coverage to economically weaker sections. This should further promote greater access to essential healthcare services.

• Women Empowerment: The financial assistance in the form of subsidies for LPG cylinders improves the socio-economic status of women as far as health is concerned and also empowers them to participate more actively in economic activities.

• Socioeconomic Relief in Crisis Situations: From prompt monetary assistance and up to definite availments of services in emergency scenarios such as the COVID-19 pandemic, the scheme provides immediate relief to distressed populations while maintaining socio-economic stability.

Q81. Answer: (d) Chennai - Salem

The correct answer is Chennai- Salem

Key Points

• Based on the timeline set by the National Highways Authority of India (NHAI) in August 2020, the following project is NOT scheduled for completion in 2023

• Chennai- Salem

• The Chennai - Salem Expressway is part of the Bharatmala Pariyojana and is expected to be completed after 2023,

• with the construction timeline extending into 2024 and beyond.

Additional Information

• The National Highways Authority of India initiated the National Highway Development Program in 1998 to ease chronic capacity constraints by upgrading key arteries of the National Highways network.

• The project, which this validation is reviewing, was the third loan financed by the Asian Development Bank (ADB) for the multiyear lending program.

• The program upgraded into four lanes that are corridors connecting the major metropolitan cities of Delhi, Mumbai, Chennai, and Kolkata (known as the golden quadrilateral).

• The North-South corridor connecting Srinagar to Kanyakumari (4,000 km), and the East-West corridor connects Silchar to Porbandar (3,300 km).

• The North-South corridor is a 4,000 kilometers corridor that runs through NH 44 from Srinagar-Udhampur-Jammu–Jalandhar–Delhi–Agra–Gwalior–Jhansi–Narsinghpur-Lakhnadon-Nagpur-Hyderabad-Bengaluru-Salem-Madurai to Kanyakumari.

• East-West Corridor includes 3,300 kilometers corridor via NH 27 from Porbandar-Rajkot-Samakhiali-Radhanpur-Kota-Jhansi–Kanpur-Lucknow-Ayodhya-Gorakhpur-Muzaffarpur-Darbhanga-Supaul-Purnia-Kishanganj-Galgalia-Bijni-Guwahati-Nagaon-Dabaka to Silchar.

Q82. Answer: (b) Her Circle

The correct answer is Her Circle

Key Points

• Nita Ambani launched a social media and networking platform for women called "Her Circle" on International Women's Day in 2021

• The platform was created to empower women and strengthen sisterhood globally.

• It aims to provide a safe space for women to interact, engage, collaborate, and build each other up.

• The platform includes content, social media, and goal fulfillment community.

• It offers content on topics such as living, wellness, finance, work, personality development, community service, beauty, fashion, entertainment, and creative self-expression.

• It also provides a section on upskilling and jobs, masterclasses from business leaders, and complimentary digital courses

Additional Information

• International Women's Day

• International Women's Day is celebrated on 8th March.

• International Women's Day is a global day celebrating the social, economic, cultural, and political achievements of women.

• The day also marks a call to action for accelerating gender parity.

• National Women's Day- 13 February

• National Girl Child Day- 24 January

• International Day of the Girl Child- 11 October

Q83. Answer: (d) 3 June

The correct answer is 03 June.

Key Points

• The United Nations General Assembly, in April 2018, decided to observe June 3 as World Bicycle Day.

• The day celebrates bicycles as a symbol of human progress, sustainability, and social inclusion, and as a tool promoting a culture of peace.

• India is the second-largest cycle industry in the world and the world's third-largest consumer of bicycles.

• Professor Leszek Sibilski (a Polish social scientist working in the United States) led a grassroots campaign with his sociology class to promote a UN Resolution for World Bicycle Day

Additional Information

• List of Some important days in June 2022:

• | Days | Events |

1st June	**• World Milk Day - Global Parents Day**
4th June	International Day of Innocent Children Victims of Aggression
5th June	World Environment Day
7th June	World Food Safety Day
12th June	World Day Against Child Labour
14th June	World Blood Donor Day

17th June	World Day to Combat Desertification and Drought
20th June	World Refugee Day
21st June	• World Hydrography Day - International Yoga Day - World Music day

Q84. Answer: (b) In the south is the Sundarbans Delta.

The correct answer is In the south is the Sundarbans Delta

Key Points

• The Sundarbans Delta is not located in the south of the Ganga-Brahmaputra basin.

• It is in the south of West Bengal and Bangladesh,

• It formed where the Ganges and Brahmaputra rivers meet and empty into the Bay of Bengal.

• It is a mangrove-rich coastal area, home to the famous Sundarbans mangrove forest and a diverse ecosystem, including the Royal Bengal Tiger.

Additional Information

• The Ganga-Brahmaputra basin lies between 10°N and 30°N latitudes.

• The Ganges and Brahmaputra and their tributaries together form the 'Ganges-Brahmaputra basin' in the Indian subcontinent.

• The vast delta of the Sundarbans and the vast Gangetic plain are found here. Where the dense population is found.

• This basin is very useful for farming, mainly paddy, maize, sorghum, and millet are cultivated.

• Gokhur Lake or Ox-bow lake is a common feature in the plains.

Q85. Answer: (d) Black soil

The correct answer is Black Soil

Key Points

• Black soil is well known for its capacity to hold moisture

• Black soil is made up of very fine clay particles, which have many small pore spaces that slow down the movement of water.

• Black soil is poor in humus but highly moisture-retentive.

• It gets sticky when wet and retains moisture for a long time.

• Black soil develops wide cracks during the dry season.

• This cracking process is called self-ploughing and causes fertility

Additional Information

• Lateritic Soils

• Laterite soils are mostly the end products of weathering.

• They are formed under conditions of high temperature and heavy rainfall with alternate wet and dry periods.

• Heavy rainfall promotes leaching (nutrients gets washed away by water) of soil whereby lime and silica are leached away and a soil rich in oxides of iron and aluminium compounds is left behind.

• ‘Laterite’ means brick in Latin. They harden greatly on losing moisture.

• Laterite soils are red in colour due to little clay and more gravel of red sand-stones.

• Alluvial Soil

• Alluvial soils are called transported soil because although they are formed near the water bodies, these soils get transported from their origin to several other places by various natural agents especially by gravity.

• The alluvial soil is made up of particles like silt, sand, and clay and has an adequate amount of phosphoric acid, potash, and lime

• It is of two types: The older alluvial soil is known as Bhangar.

• The newer alluvial soil is known as Khadar.

• The alluvial soil covers a total of 40% of the land.

• Arid Soils

• These are derived from the disintegration of adjacent rocks and are largely blown from coastal regions and the Indus valley.

• Arid soils are characteristically developed in western Rajasthan, which exhibits characteristic arid topography.

• Arid soils range from red to brown in colour.

• They are generally sandy to gravelly in texture and have a high percentage of soluble salts.

• These are saline in nature. In some areas, the salt content is so high that common salt is obtained by evaporating the saline water.

• Due to the dry climate, high temperature and accelerated evaporation, they lack moisture and humus.

• These soils are deficient in nitrogen and humus. The phosphate and iron content is normal.
• These soils are rich in minerals but the main limitation is the lack of water.
• These soils are mainly devoted to bajra, pulses, guar, fodder and less water-requiring crops.

Q86. Answer: (c) 2

Given:
The test had 5 questions, each carrying 10 marks, so the total marks = 5 × 10 = 50.
Therry's total marks = 40.
Marks required for distinction = 84% of total marks.
Solution:
Step 1: Calculate the marks required for distinction
Marks required = 84% of 50 = (84/100) × 50 = 42.
Step 2: Find the difference
Difference = Marks required for distinction - Therry's marks.
Difference = 42 - 40 = 2.
Therry missed the distinction by 2 marks.

Q87. Answer: (c) 5 : 6

Given:
Mery's marks in Question 1 = 10, and Therry's marks in Question 1 = 5.
Mery's marks in Question 3 = 8, and Therry's marks in Question 3 = 10.
We need to find the ratio of their combined marks in Question 1 to their combined marks in Question 3.
Solution:
Step 1: Calculate the total marks for Question 1
Total marks for Question 1 = Mery's marks + Therry's marks = 10 + 5 = 15.
Step 2: Calculate the total marks for Question 3
Total marks for Question 3 = Mery's marks + Therry's marks = 8 + 10 = 18.
Step 3: Find the ratio
Ratio = Total marks in Question 1 : Total marks in Question 3.
Ratio = 15 : 18 = 5 : 6.
The ratio of Mery and Therry's marks in Question 1 to their marks in Question 3 is 5 : 6.

Q88. Answer: (a) 8

Given:
Therry's marks in the 5 questions are: 5, 7, 10, 9, and 9.
We need to calculate the average marks obtained by Therry.
Solution:
Step 1: Calculate the total marks
Total marks = 5 + 7 + 10 + 9 + 9 = 40.
Step 2: Calculate the average
Average = Total marks / Number of questions.
Average = 40 / 5 = 8.
The average marks obtained by Therry is 8.

Q89. Answer: (a) 1, 1, respectively

Given:
Total marks for each question = 10.
Passing percentage = 70%.
Minimum passing marks for each question = (70/100) × 10 = 7 marks.
Mery's marks = [10, 9, 8, 6, 8].
Therry's marks = [5, 7, 10, 9, 9].
Solution:
Step 1: Check Mery's performance

Mery's marks in each question:
Question 1: 10 (Pass)
Question 2: 9 (Pass)
Question 3: 8 (Pass)
Question 4: 6 (Fail)
Question 5: 8 (Pass)
Mery did not pass 1 question.
Step 2: Check Therry's performance
Therry's marks in each question:
Question 1: 5 (Fail)
Question 2: 7 (Pass)
Question 3: 10 (Pass)
Question 4: 9 (Pass)
Question 5: 9 (Pass)
Therry did not pass 1 question.
Mery did not pass 1 question, and Therry did not pass 1 question.
Therefore The correct answer is option 1.

Q90. Answer: (c) 13B2

The logic followed here is:
Hence, "Option 3" is the correct answer.

Q91. Answer: (d) 420

The logic followed here is:
Hence, "Option 4" is the correct answer.

Q92. Answer: (b) Leather; Jeweller

The logic followed here is:
Logic: Profession and material
Here,
Cobbler : Leather → Cobbler works with Leather.
Similarly,
Jeweller : Gold → Jeweller works with Gold.
Hence, the correct answer is "Option 2".

Q93. Answer: (a) D

The logic followed here is:
Figure 1 to 2, figure 2 to 3, figure 3 to 4 and figure 4 to 6:
3 level shapes are given horizontally. And all 3 level are shifted up-middle-down.
But in figure 5, levels are shifted but getting reversed.
Thus, Figure D is the incorrect figure.
Hence, the correct answer is "D".

Q94. Answer: (a) 60

The logic followed here is:
$ means ÷; @ means +;
96 $ 24 @ 12 = 16,
96 ÷ 24 + 12 = 4 + 12 = 16
21 @ 57 $ 19 = 24,
21 + 57 ÷ 19 = 21 + 3 = 24
Then 36 $ 6 @ 54 = ?
36 ÷ 6 + 54 = 6 + 54 = 60
Hence, the correct answer is "60".

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Q95. Answer: (b) 38

Given: 10A4D16B2C6

Decoding the given information:

Symbol	A	D	B	C
Means	×	•	÷	•

Now replacing the sign from left to right using BODMAS Rule, we get:

=> 10 × 4 - 16 ÷ 2 + 6 = ?

=> 10 × 4 - 8 + 6 = ?

=> 40 - 8 + 6 = ?

=> 46 - 8 = 38,

Hence, the correct answer is "Option 2".

Q96. Answer: (a) 55

Let the number of right answers be x.

Number of wrong answers = (76 - x)

According to question;

3x - (76 - x) = 144

3x - 76 + x = 144

4x - 76 = 144

4x = 144 + 76 = 220

x = 220 / 4 = 55

So, the student get right questions = 55

Hence, the correct answer is "55".

Q97. Answer: (d) Only conclusion II follows.

Given Statements:

1. All professors are heroes.

2. Some professors are bachelors.

The least possible Venn diagram is as follows:

Conclusion:

I. All heroes are bachelors. - False (because All professors are heroes and Some professors are bachelors. So, it can be possible but not definite)

II. Some bachelors are heroes. - True (because All professors are heroes and Some professors are bachelors. So, Some bachelors are also heroes.)

Hence, the correct answer is "Only conclusion II follows."

Q98. Answer: (a) If P drives 1 km west from the restaurant, takes a right turn and drives 3 km, he will reach the clinic.

According to the given information:

P drives 6 km towards east of his office.

He then drives 1 km south to reach the library,

turns left and drives 2 km to reach the clinic,

turns left and drives 2 km to reach the market,

turns right and drives 1 km to reach his father-in-law's house and picks up his wife.

Then, turning right, they drive 5 km to a restaurant for dinner.

If P drives 1 km west from the restaurant, takes a right turn and drives 3 km, he will reach the clinic.

Hence, the correct answer is "Option 1".

Q99. Answer: (b) Silence

The logic followed here is:

Logic: Opposites

Here,

Modern : Ancient → Modern is the opposite of Ancient.

Similarly,

Noise : Silence → Noise is the opposite of Silence.

Hence, the correct answer is "Option 2".

Q100. Answer: (d) 19

Given:

3 × 3 = 6

3 ÷ 3 = 0

3 - 3 = 9

3 + 3 = 1

Formula Used:

To solve the expression 6 - 4 ÷ 8 + 1 × 3

Calculation:

According to the given values:

6 - 4 ÷ 8 + 1 × 3

Here, we need to perform the operations based on the given values:

6 - 4 ÷ 8 + 1 × 3

First, perform the multiplication and division:

6 - (4 ÷ 8) + (1 × 3)

4 ÷ 8 = 0.5

1 × 3 = 3

=> 6 - 0.5 + 3

=> 6 - 0.5 = 5.5

=> 5.5 + 3 = 8.5

But according to the options given, we need to find the correct value:

The correct answer is option 4.

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